

AMERICAN RAILROAD JOURNAL.

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HENRY V. POOR, Editor.

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American Railroad Journal.

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Saturday, September 20, 1851.

The "Great Western Railroad" of Canada.
New York, September 15th, 1851.

TO THE EDITOR OF THE R. R. JOURNAL:

Sir—While on a visit at Hamilton, C. W., last week, I received from a gentleman in the direction of the Great Western railroad company, an invitation to accompany a party, composed of the editors of the local press, the chief engineer, and one or two of the contractors, on a tour of observation along a portion of the line of railroad now in course of construction. The opportunity thus afforded induces me to throw together a few hasty remarks on the subject of this road, and its prospects of speedy completion.

For the information of such of the readers of the "American Railroad Journal," as have not visited "Her Majesty's Canadian Possessions," (a term which very many loyal people delight in), I will first speak of the geography of the road and the lo-

calities it will connect. When the name of Canada is mentioned to many Americans, who have not improved their education by even a tour to the "Falls," it is not unfrequently attended by an involuntary shiver, conveying the idea of a country covered half the year by snow. They have read in their school geographies, and been told by their nurses, frightful stories about the intense cold and fearful snow storms of Canada—which, as regards the region about Quebec, are doubtless quite true; and hence it is difficult for them to conceive that any part of Canada can be a desirable place of residence. For the information of such persons, and many such I have met in my travels in various parts of the Union, I would state that there is a tract of country in western Canada as large as Massachusetts, Connecticut, and Rhode Island, put together, lying south of a line drawn from Toronto due west to the shores of Lake Huron. The greater portion of this large tract of country lies on a parallel south of Boston, and corresponds in latitude with the most valuable agricultural districts of the State of New York. There is, however, no part of that fertile State of equal extent, taken as a whole, that can compare with this part of Canada in fertility of soil, healthiness, and equability of climate, facilities for internal communication, as well as all other natural advantages. I make this bold assertion, with a thorough knowledge acquired by an extended residence in both countries.

The section of Canada which I am describing is, moreover, a peninsula, formed by the lakes Huron, St. Clair, Erie and Ontario, and the rivers which connect them. This circumstance of being nearly surrounded by large bodies of water, has probably had a very favorable effect on the climate, in mitigating the extremes of heat and cold. The reader will now be so kind as to cast his eye upon the map of the United States, and he will perceive that this great peninsula of Canada, the property of her Britannic Majesty, obtrudes itself in the most impertinent manner imaginable, right between the State of Michigan and the Empire State of New York—thus cutting off Uncle Sam's only direct communication between his eastern and western territories and states. But, bold as is the position which nature has thus assigned to western Canada, she possesses another, scarcely less important, in a commercial point of view. While she holds in her hand the key to the trade between the Atlantic

sea board and the great west, she also lies directly on the great highway between the north and the south, the rich and teeming valley of the Mississippi and the Gulf of Mexico on the south, and the magnificent river and Gulf of St. Lawrence on the north. But possessed as she is of all these natural advantages, with vast forests of the finest timber, abounding in minerals of all kinds, and every where abundantly supplied with water power, she has allowed the vast commerce between the east and the west, the north and the south, to be diverted around her southern and eastern borders by a circuitous route. Her canals, built at enormous cost, on a most magnificent scale, are found unequal to a fair competition with the Erie canal.

There are some people, on both sides the line, malicious enough to impute this anomalous position of Canada, to the enervating effects of her colonial relations with England. Others go further, and assert that she can never fully develop her great natural resources, or use the key to the southern and western commerce, which she undoubtedly holds, until she annexes herself to the great republic, and enjoys without limit the benefits of reciprocal free trade. But these are questions, which time and the people of the two countries will doubtless settle to the satisfaction of all parties. At present, we must look at matters as they really are. A stranger visiting the British Provinces at the present moment, although on the eve of a general election, which of course engrosses much attention, would fancy from the magnificent projects for the construction of railroads from Detroit to Halifax, that he would hear every where discussed, that a people so enterprising and spirited, and having the control of such vast capital—in fact holding the entire command of John Bull's heavy purse-strings—must have many hundreds of miles of railroad in active operation. He will, however, feel surprised at learning, that Upper Canada has not a mile of road to boast of. But she is doubtless waking up from her slumbers—perhaps the neighing of the iron horses which frequent her borders at many points, has disturbed her dreams of quiet repose—and the Great Western railroad is to be the result of her first efforts; and a grand result it will be. My friends at Hamilton must pardon this little digression, upon subjects not entirely connected with their road. They must recollect that I am writing for the information of those who are less

acquainted with the causes of the slow progress of railways in Canada than they are. But I will now proceed with their favorite and truly great enterprise.

The reader, having his eye still upon the map of the United States, will perceive, as I have before stated, that the peninsula of western Canada interposes itself between the States of Michigan and New York, and that the shortest possible route between the two, is through it. In order to fully appreciate the importance of the Great Western railroad, which is intended as a connecting link between the railroads of the two States named, it will be necessary to compare distances. Taking Canandaigua, whence a railway is building direct to Niagara Falls, as the starting point going westward, it will be as follows:

To Buffalo via Batavia, where the roads intersect..... 85 miles.
Buffalo to Detroit by the lake..... 327 "

412 miles.

Canandaigua to Niagara Falls..... 85 miles.
Niagara Falls to Detroit, by the Great Western..... 227 "

312 miles.

In favor of the Canada route..... 100 miles.

Competing for the more westerly travel of Chicago, with the Southern Michigan railroad and the roads building round the south shore of Lake Erie, the distance will still be more than 60 miles in favor of the Great Western. This road in fact will not only command the greater part of the through travel and traffic on the Central Michigan road, and the New York Central roads to Albany, but also that of the Southern Michigan road which must shortly have a branch crossing the Detroit river at Amherstburgh to intersect the Great Western at a convenient point. It will also lay claim to a large share of the business and travel from the New York and Erie road by way of Elmira and Canandaigua—which will be the shortest possible route between New York city and Chicago. The Ogdensburgh railroad will be another tributary.—But perhaps of all the various routes which this Canada railroad is destined to open and control, the favorite one during the season of navigation will be by Lake Ontario to Oswego. Passengers leaving Detroit at a convenient hour after breakfast, will reach Hamilton, head of Lake Ontario, in the middle of the afternoon, and take one of the splendid steamers and arrive at Oswego next morning, after a good night's rest; and be in New York, the same evening—where, of course, every body who travels is going. Old travellers, who know the luxury of getting on board a fine steamer after a fatiguing day's ride in a railroad car, will always appreciate this route. I may also mention here, that in addition to all these extraordinary advantages possessed by the Great Western railroad, it will form a portion of the "Great Main Trunk road" to be built from Windsor to Halifax. But as the lower end of this line, between Halifax and Quebec, an uninhabited country, is to be built first, out of a loan guaranteed by the Imperial government, and the remainder, through the wisdom of Mr. Hincks, Inspector General of Canada, by corporate securities and provincial debentures, it may be some years before the Great Western can avail itself of this source of business. Canadian statesmen should have credit for originality of ideas and conceptions, and for doing things differently from the rest of the world. After waiting till the coun-

try has fallen twenty years behind all other civilized nations, in railways, the great necessity of the age, they commence, when an opportunity is afforded, at what the stupid Yankees and English would be very apt to call the wrong end. They are going to build six hundred miles of railroad where nobody lives, and nobody wants to go. This is doubtless done from the belief that, if the government make the bad lines of road, some good natured people will be found to buy up corporation debentures to build the good ones. They don't consider that a bad bargain is a bad bargain, at any price. I wonder if the prospect of a little jobbing, the fingering of thirty-five millions of dollars, to be borrowed by the Provinces from Uncle John's exchequer, has had anything to do in saddling the Provinces with the payment of this enormous sum—principal and interest; though the latter be but three and a half per cent.

With a similar guarantee there are doubtless plenty of men to be found in the Canadian Legislature who would pledge the credit of the Province to build a railroad to the Rocky Mountains, Cape Horn, or even to the Moon, under the influence of which planet they must be presumed to be acting. But I am again digressing.

Having now pointed out some of the extraneous sources of business which this line of railway must necessarily command, without saying anything of a large local traffic, the reader will doubtless desire to know what prospect there is of its speedy completion. On this subject I can speak from personal observation, and some knowledge of the company's resources. The whole line is under contract, and about 50 miles from Hamilton, westward, in a forward state of grading. The first ten miles, after leaving Burlington Bay, is very heavy work, presenting many serious engineering difficulties. These, however, have been surmounted in the most skillful and masterly manner by the able chief engineer, R. G. Benedict, Esq., and his assistants. At the above distance the table land, extending in an almost level plane to Detroit, is reached. On following the line of road over the first 17 miles westward from Hamilton, and noting the progress of the different contractors, I was much struck with the admirable route selected for the road. It passes through a gravelly ridge about 100 feet high, which separates Burlington Bay from a large marsh extending three miles to the village of Dundas. The cutting here will be about 60 feet in depth, and over a quarter of a mile in length, through a solid bed of firmly cemented gravel. The line then crosses a small canal running to Dundas through the marsh. Here great difficulties are encountered. In order not to interfere with the navigation, where a vessel having a mast is rarely or never seen, the company are obliged, at great expense, to construct a draw bridge. For this purpose soundings have been taken in the marsh, and a coffer dam constructed, so as to lay the foundation of two abutments, at a depth of 25 feet below the surface of the water. These foundations are to be laid on piles driven close together, in order to prevent it from sinking. The towers or abutments are to rise 50 feet above the water, thus making their whole height 75 feet.

On reaching the westerly bank of the canal, the line of the road continues to rise on a regular and uniform grade of 45 feet to the mile, for ten miles, to the summit level at Cope Town. The route is on the southeasterly declivity of the picturesque range of hills which surround Hamilton and the head of Lake Ontario like a vast amphitheatre.

The scenery along this part of the road is very beautiful and imposing, as you gradually and almost imperceptibly rise the declivity. At four miles from Hamilton, the roadway lies about half way up the hill side, which here becomes and continues for several miles, quite precipitous. It reminds one of some points along the Erie railway, where it winds along the bold and devious banks of the Delaware. All the gentlemen of our party, who had not before visited the works, were surprised and highly gratified at the rapid progress they were making. It is now pretty certain that all the section lying west of Cope Town and extending to London where the grades are very light, and but few obstacles occur, will be ready for the iron within one year from this time, and the entire line from Niagara Falls to Detroit in running order within two years.

At Cope Town, the summit between Lakes Ontario and Erie is passed. The party proceeded on some seven miles further, sometimes on foot, following the long deep cuttings and embankments, when we reached a farm house at Fairchild's creek, occupied as the head quarters of Mr. Zimmerman, of Niagara Falls, the partner of Mr. Farewell, of Utica, the principal contractors. These gentlemen are both of the right sort for building railroads.—They are as courteous and gentlemanly in their manners as they are energetic and business-like in their operations. Here we were met by two of Mr. Benedict's assistants, Messrs. Spaulding and Babbit, who, like all others connected with the practical department of the road, with whom it has been my pleasure to meet, I found to be gentlemen of intelligence and thoroughly acquainted with their business. The engineers and nearly all the contractors, I may here mention, are Americans. The Canadians are too far behind this age of railways and steam locomotion, to furnish men competent for such undertakings. They have therefore wisely given place to men of experience, who will lay out the company's money to better advantage. Being a Canadian myself, I feel that I have the privilege of speaking what may be an unpalatable truth to my countrymen. Here, after partaking of an excellent and bountiful repast, prepared for us by Mr. Zimmerman, and doing ample justice to his iced champaign, I left the excursionists to pursue their way westward, and returned with some of the party to Hamilton the same evening.

The means of the company are as follows, as nearly as I could learn:

Private stock held in Canada, about.....	\$400,000
Corporation subscriptions.....	600,000
Agreed to be taken on contract for iron....	500,000
Government guarantee for half the price of construction.....	3,000,000
	<hr/> \$4,500,000

There is in addition a small quantity of stock held in England, but how much I am unable to state—inasmuch as there appears to be some mystery attached to the English subscriptions. Sometimes a paragraph appears in a Canada paper, affirming on "good authority," that a million of dollars or more of the stock has been taken there. At another time it is asserted that there are "good reasons" for stating that English capitalists are beginning to understand the value of Canadian investments, and intend shortly to take all the spare stock in this and many other projects long talked of in the Provinces. But the capital required, in addition to the above aggregate sum, to finish the road, the company expect will be taken by Americans inter-

ested in the Central Michigan railway, and the roads between Albany and Rochester, which are to connect with the Great Western by the Rochester, Lockport and Niagara Falls railroad, now building.

These gentlemen, however, have not yet come up to the scratch, and I heard it intimated by a person in the board of direction at Hamilton, that, unless the promised million was very shortly forthcoming, a negotiation would be opened with the capitalists connected with the New York and Erie and the Southern Michigan roads. By changing the direction of the Western road very slightly, and without increasing its length, it might be carried to Amherstburgh, which is only some 15 miles from the Southern Michigan line. Such an arrangement would be of great value to the latter road as well as to the Erie, and would give them the advantage in the carriage of freight and passengers east and west. It would also be of equal or greater value to the Great Western; for while it secured to it the trade and travel on the two more southern lines, the more northern ones would not have it in their power to divert their business into other channels, on account of the manifest superiority of the Canadian route. If the subject has not already engaged the attention of the parties interested in the southern roads, I advise them to lose no time. An offer of a million of dollars for stock in the Great Western just now, would turn the scales in their favor. Where are Mr. Loder and Mr. Townsend, that they are not looking to this matter?

I have omitted to speak of the exceeding favorableness of the grades on the line of the Great Western, which must make it the safest and enable it to acquire the highest degree of speed of any road in America of similar length. The locating engineer, in his report, states that "95 per cent of the whole distance is in tangent lines, and two-thirds of the remaining 5 per cent is on curves of which the radii vary from 5,780 feet to 11,060; while 183 miles is either entirely level, or exhibits inclinations of less than five feet per mile, and 54 miles present slopes of less than 20 feet to the mile." With the newly invented "Compound Patent Rail," which is in two parts, and riveted together so as to break joints, a speed equal or greater than that on the best English railways may be attained on the Great Western with perfect safety and comfort. I understand that it is the intention of the chief engineer, Mr. Benedict, to recommend this rail for adoption by the company. H. B. W.

Texas.

The Railroad Convention.—A public meeting of the citizens of San Augustine county is called for Saturday next, to appoint delegates to represent this county in a Railroad Convention to be held in Burkeville, on the first day of October next. What are our sister counties doing in this matter? We sincerely hope that the meeting will be held and delegates appointed from every county. No time is to be lost. Louisiana herself selects Burkeville as the place of holding the convention, thus giving us all advantages in point of location. A continuation of the present projected road for eighty-four miles connects it with the Sabine river opposite Burkeville, and then the proposed route continues through a level, timbered section of the State for several hundred miles. We again say that we hope every county from the Gulf to Red River on the north will be represented. Mr. Cyrus Thompson, in a letter to the Hon. William Hardiman, of Nacogdoches county, pledges "a respectable, if not large attendance of delegates from Louisiana." He says "much interest is felt there in the matter"—and all that is now necessary for the completion of this great work is for Texas to feel a similar interest.—*Redland (Texas) Herald*.

Observations on the Pluton Geysers of California.

By FOREST SHEPHERD,* Prof. Economic Geology, in Western Reserve College, Hudson, Ohio.

There is a tradition among the Indians of California, that not many years ago, the Chrysopylæ or Golden Gates at the entrance of the Bay of San Francisco were part of the solid land, and that the inland sea receiving the waters of the Sacramento and San Joaquin overflowed the beautiful valleys of San Jose, Napa and Sonoma, and had its outlet in the vicinity of Monterey.

Other more recent California explorers affirm that in the present bay of San Francisco they have discovered standing trees completely petrified, to which they have made fast their boats at low tide. The numerous dislocations observed in the tertiary strata, together with the great number of specimens of petrified wood and deposits of lignite found upon the shores of the bay, also signs of thermal action at the southeastern section of the bay, induced me to give so much credence to the above and other traditions, as to enter upon some careful examinations with reference to them. In the course of my investigations, I have explored some remarkable geysers in the Pluton valley, and these form the main subject of my present communication.

On my way to the Pluton valley, I first coasted around the bay of San Francisco in an open boat, examining the rocks in its vicinity. At the entrance of Napa valley and about two miles from the present tide, I discovered a belt of remarkably hard and heavy limestone, evidently fossiliferous and yet changed in some places by metamorphic action. In breaking into this bed of limestone, however, I was surprised to find imbedded in the solid rock, sharks teeth as perfect in their serrated edges as those of present living species swimming in the bay only two miles distant. I examined the range of hills eastward about one mile, which bounds and divides Napa valley from Suisun, and there I found the rocks to be a porphyry, with numerous springs flowing out at the base. I applied my thermometer and was surprised to find no two springs of the same temperature, they ranging from seventy-eight degrees Fahrenheit downward. I now travelled about thirty miles northward in Napa valley, following the above mentioned chain of hills to the thermal springs of Messrs. Ritchie and Tucker, where I found the temperature of different springs as follows:—

No. 1, 105 degrees, Fah.	No. 11, 132 degrees Fah.
2, 120 "	12, 169 "
3, 144 "	13, 129 "
4, 133 "	14, 150 "
5, 147 "	15, 131 "
6, 144 "	16, 128 "
7, 129 "	17, 93 "
8, 124 "	18, 100 "
9, 120 "	19, 120 "
10, 131 "	20, 118 "

These springs are all embraced in a half mile square of level bottom land near the base of a small hill or mound of conglomerate rock about one hundred and fifty feet in height. The same kind of rock also extends underneath the springs. There is little or no opportunity for surface cold water to commingle with them, and it is a remarkable fact that they are continually changing their temperature, so that one that is now moderately warm will in the space of a few weeks or months become hot beyond endurance. This shifting of the internal heat greatly excited my curiosity, and on enquiring, I learned from Mr. Cyrus that the Indians had pointed out a place near the foot of Mount St. Helena where the hot waters formerly flowed, but had now ceased. I believed this to be a good opportunity to test the truth of their tradition, and repaired to the spot. Externally there was no uncommon appearance to designate the locality. Neither a surplus nor scarcity of vegetation, and no appearance of scoria, tufa or travertine, as might have been expected. I found one place slightly warm on the surface, which on excavating to the depth of two feet became so hot that I could not bear my hands in the mud and clay. I inserted the bulb of my thermometer, and the mercury at once rose to one hundred and twenty degrees. From observa-

* From a letter addressed to Thomas Denny, Esq., New York city, and communicated by him to the American Journal of Science and Arts.

tions already made by myself and in company with Professor James Nooney, I now felt that I could trace the line of thermal action, and my next object was to find the seat or focus of its greatest intensity. To accomplish this I was so fortunate as to have the aid of Messrs. P. Cyrus, J. Cyrus, and B. F. Briggs, three excellent young gentlemen and experienced hunters. We travelled northwesterly from the head of Napa valley, and after encamping one or two nights in the rain, and wandering through almost impenetrable thickets, reached the summit of a high peak on the morning of the fourth day. On the west we saw the vast Pacific. On the south, the bay of San Francisco, Mount Diablo,* Sonoma and Napa valleys. On the southwest, the valleys of Santa Rosa and Russian river. On the east, the lofty range of the Sierra Nevada; while on the north, almost immediately at our feet, there opened an immense chasm apparently formed by the rending of the mountains in a direction from west to east. The sun's rays had already penetrated into the narrow valley and so lighted up the deep defile, that from a distance of four or five miles, we distinctly saw clouds and dense columns of steam rapidly rising from the banks of the little river Pluton. It was now the eighth of February, the mountain peaks in the distance were covered with snow, while the valley at our feet wore the verdant garb of summer. It was with difficulty we could persuade ourselves that we were not looking down upon some manufacturing city, such as Pittsburg or Wheeling, until by a tortuous descent we arrived at the spot where at once the secrets of the inner world opened upon our astonished senses. In the space of half a mile square we discovered from one to two hundred openings through which the steam issued with violence, sending up columns of dense steam to the height of one hundred and fifty to two hundred feet, like our largest ocean steamers, and gradually diminishing to engines of one or two horse power. The roar of the large tubes could be heard for a mile or two. The sharp hissing of the smaller ones is still ringing in my ears. Many of them would work spasmodically, precisely like high pressure engines. Throwing out occasional jets or volumes of hot scalding water some twenty or thirty feet, endangering the lives of those who rashly venture too near. In some places the steam and water came in contact so as to produce a constant "jet d'eau" or spouting fountain with a dense cloud above the spray, affording vivid prismatic hues in the sunshine.

Numerous cones are formed by the accumulation of various mineral salts and a deposit of sulphur crystals with earthy matter, which often harden into crusts of greater or less strength and thickness. Frequently the streams of boiling water would mount up to the top of the cones with violent ebullition. Some of the cones appear to be immense boiling cauldrons, and you hear the lashing and foaming gyrations beneath your feet as you approach them. It is then a moment of intense interest. Curiosity impels you forward—fear holds you back; and while you hesitate, the thin crust under your feet gives way, and you find yourself sinking in the fiery maelstrom below. The writer on one occasion heard the rushing of water under his feet. He struck down an axe which on the first blow went through into the deep whirlpool the whole length of the helve. He withdrew it and cut an opening, which revealed a stream of angry water, boiling intensely, of an unknown breadth and depth. He continued to enlarge the opening until the stream was seen to be five or six feet in breadth, leading on indefinitely into the dark caverns beneath the mountain. This geyser is called *Agassiz's Maelstrom*.

Another place where a volume of water boils up violently and settles in a circular basin and has also a steam tube by its side, is called *Silliman's Fountain*. Another is named the *Panther Geyser*, from the circumstance that a huge wild panther had taken up his residence on the bank of the warm mound and seemed quite unwilling to leave his comfortable habitation. Another, where the waters gyrate with a loud noise "in gurgile vasto" is called *Pluto's Cauldron*. Another, the *Ocean Steamer*, &c.

* Mount Diablo is reported to be an extinct volcanic cone.

At the base of the cones, in the bottom of the ravines, and in the bed and on the north bank of the river Pluton, springs almost innumerable break out, which are of various qualities and temperatures, from icy coldness up to the boiling point. You may here find sulphur water precisely similar to the *White Sulphur* of Green Brier County, Va., except its icy coldness. Also red, blue and even black sulphur, both cold and hot. Also pure limpid hot water without any sulphur or chlorine salts, calcareous hot waters, magnesian, chalybeate, &c., in almost endless variety. Every natural facility is afforded for either vapor, shower or plunging baths. Where the heated sulphuretted hydrogen gas is evolved, water appears to be suddenly formed, beautiful crystals of sulphur deposited (not sublimed as by fire), and more or less sulphuric acid generated. In some places the acid was found so strong as to turn black kid gloves almost immediately to a deep red. Where the heated gas escapes in the river Pluton, such is the amount of sulphur deposited that the whole bed of the stream is made white for one or two miles below, similar to the *White Sulphur Spring* in Virginia. From numerous experiments made here and in the mountains of Virginia, I am confident that all sulphur springs possess a high temperature after descending below the cold surface water. Notwithstanding that the rocks and earth in many places are so hot as to burn your feet through the soles of your boots, there is yet no appearance of a volcano in this extraordinary spot. Were the action to cease, it would be difficult after a few years to persuade men that it ever existed. There is no appearance of lava. You find yourself standing not in a solfatara nor one of the sales described by the illustrious Humboldt. The rocks around you are rapidly dissolving under the powerful metamorphic action going on. Porphyry and jasper are transformed into a kind of potters clay. Pseudotrappean and magnesian rocks are consumed much like wood in a slow fire, and go to form sulphate of magnesia and other products. Granite is rendered so soft that you may crush it between your fingers, and cut it as easily as bread unbaked. The feldspar appears to be converted partly into alum. In the meantime, the boulders and angular fragments brought down the ravines and rivers by the floods, are being cemented into a firm conglomerate so that it is difficult to dislodge even a small pebble, the pebble itself sometimes breaking before the cementation yields.

The thermal action on wood in this place is also highly interesting. In one mound I discovered the stump of a large tree silicified; in another a log changed to lignite or brown coal. Other fragments appeared midway between petrification and carbonization. In this connection, finding some drops of a very dense fluid and also highly refractive, I was led to believe that pure carbon might under such circumstances crystallize and form the diamond. Unfortunately for me however, I lost the precious drop in attempting to secure it.

A green tree cut down and obliquely inserted in one of the conical mounds, was so changed in thirty-six hours that its species would not have been recognized except from the portion projecting outside, around which beautiful crystals of sulphur had already formed.

From the thermal exhalations and the amount of sulphur deposited, it might be supposed that the progress of vegetation would be retarded. But such is not the fact. On the contrary it is greatly facilitated. The *Quercus sempervirens* or evergreen oak, flourishes in beauty within fifty feet of the boiling and angry geysers. Maples and alders from one to two feet in diameter, grow within twenty or thirty feet of the hottest steam pipes. This, however, may be accounted for by the cold surface water flowing from the adjacent mountain. Here too the birds build their nests and "sing among the branches." Multitudes of grizzly bears make their beds on the warm grounds. Panthers, deer, hares and squirrels also take up their winter quarters in the very midst of the geyser mounds. Farther down the stream on the terraced banks of the limpid Pluton, vegetation (as one gentleman has aptly expressed it) "*actually runs wild*," and the winter months exhibit all the fancied freshness of primeval Eden.

I have now traced the influence of this thermal action from two to three hundred miles on the Pa-

cific coast of California, but only in this place have I been permitted to witness its astonishing intensity. The metamorphic action going on is at this moment effecting important changes in the structure and conformation of the rocky strata. It is not stationary, but apparently moving slowly eastward in the Pluton valley.

I would respectfully invite the attention of geologists to this cause of action, which hitherto has been too little studied and at present is not perfectly understood. The investigation will probably aid in accounting for the existence of many springs independent of ordinary Artesian flow, the formation of deep and varied soils, of beds of sulphur, rock salt, chalk, clay, hydrous iron ore, gypsum, &c., and perhaps extensive sections of breccia and conglomerate like those which traverse our continent.

California, March 17, 1851.

Steam Boilers, and the Causes of their Explosions.

Continued from page 589.

2nd. Explosions from Deficiency of Water.—This division of the subject requires the utmost care and attention, as the circumstance of boilers being short of water is no unusual occurrence. Imminent danger frequently arises from this cause, and it cannot be too forcibly impressed upon the minds of engineers, that there is no part of the apparatus which constitutes the mountings of a boiler which requires greater attention—probably the safety-valves not excepted—than that which supplies it with water. A well-constructed pump, and self-acting feeders—when boilers are worked at a low pressure—are indispensable, and where the latter cannot be applied, the glass tubular gauge steam and water cocks must have more than ordinary attention.

In a properly constructed boiler every part of the metal exposed to the direct action of the fire should be in immediate contact with the water, and when proper provision is made to maintain the water at a uniform height and depth above the plates, accidents can never occur from this cause.

Should the water, however, get low from defects in the pump, or any stoppage of the regulating feed valves, and the plates over the furnace become red hot, we then risk the bursting of the boiler, even at the ordinary working pressure. We have no occasion, under such circumstances, to search for another cause, from the fact that the material when raised to a red heat has lost about five-sixths of its strength, and a force of less than one-sixth will be found amply sufficient to bear down the plates directly upon the fire, or to burst the boiler.

When a boiler becomes short of water, the first and perhaps the most natural action is to run to the feed valve, and pull it wide open. This certainly remedies the deficiency, but increases the danger, by suddenly pouring upon the incandescent plates, a large body of water which, coming in contact with a reservoir of intense heat, is calculated to produce highly elastic steam. This has been hitherto controverted by several eminent chemists and philosophers, but I make no doubt such is the case, unless the pressure has forced the plates into a concave shape, which for a time would retard the evaporation of the water when suddenly thrown upon them. Some curious experimental facts have been elicited on this subject, and those of M. Boutigny, and Professor Bowman of King's College, London, show that a small quantity of water projected upon a hot plate does not touch it; that it forms itself into a globule surrounded with thin film, and rolls about upon the plate without the least appearance of evaporation. A repulsive action takes place, and these phenomena are explained upon the supposition that the spheroid has a perfectly reflecting surface, and consequently the heat of the incandescent plate is reflected back upon it. What is, however, the most extraordinary in these experiments is the fact that the globule, whilst rolling upon a red hot plate, never exceeds a temperature of about 204° of Fahrenheit; and in order to produce ebullition, it is necessary to cool the plate until the water begins to boil, when it is rapidly dissipated in steam.

The experiments by the committee of the Franklin Institute, on this subject, give some interesting and useful results. That committee found that the

temperature of clean iron, at which it vaporized drops of water was 334° Fahrenheit. The development of a repulsive force, which I have endeavored to describe, was, however, so rapid above that temperature, that drops which required but one second of time to disappear at the temperature of maximum vaporization, required 152 seconds when the metal was heated to 325° of Fahrenheit. The committee goes on to state that—"One ounce of water was introduced into an iron bowl three-sixteenths of an inch thick, and supplied with heat by an oil-bath at the temperature of 546°, was vaporized in fifteen seconds, while at the initial temperature of 507°, that of the most rapid evaporation was thirteen seconds."

The cooling effect of the metal is here strikingly exemplified, by the increased rapidity of the evaporation, which at a reduced temperature of 38° is effected in thirteen instead of fifteen seconds.

This does not, however, hold good in every case, as an increased quantity of water, say from one-eighth of an ounce to two ounces, thrown upon heated plates, raised the temperature of its evaporation from 460° to 600° Fahrenheit; thus clearly showing that the time required for the generation of explosive steam under these circumstances is attended with danger, and it may be doubted, whether the ordinary safety valves may not be wholly inadequate for its escape.

Numerous examples may be quoted to show that explosions from deficiency of water, although less frequent than those arising from undue pressure, are by no means uncommon—they are, nevertheless, comparatively fewer in number, and the preventives are good pumps, self acting feeders, when they can be applied, and all those conveniences, such as water cocks, water gauges, floats, alarms, and other indicators of the loss and reduction of water in the boiler.

3rd. Explosions produced from collapse.—Accidents from this cause can scarcely be called explosions, as they arise not from internal force, which bursts the boiler, but from the sudden action of a vacuum within it. In high-pressure boilers, from their superior strength and circular form, these accidents seldom occur, and the low pressure boiler is effectually guarded against it by a valve which opens inward by the pressure of the atmosphere whenever a vacuum occurs. In some cases a collapse of the internal flues of boilers has been known to take place, from a partial vacuum within, which united to the pressure of the steam, has forced down the top and sides of the flue, and with fatal effect discharged the contents of the boiler into the ash-pit, and destroyed and scalded everything before it. A circumstance of this kind occurred on the Thames, on board the steamer Victoria, some years since, when a number of persons lost their lives, and serious injury was sustained in all parts of the vessel within its reach. This accident could not, however, be called an explosion, but a collapse of the internal flues, which were of large dimensions and the consequent discharge of large quantities of steam and water into the space occupied by the engines.

One or two cases which bear more directly on this point are, however, on record, one which took place in the Mold Mines, in Flintshire, was attended with explosion. The particulars, as given by Mr. John Taylor, will be found circumstantially recorded in the first volume of the *Philosophical Magazine*. This occurrence seems to prove that rarefaction produced in the flues of a high-pressure boiler may determine an explosion. The boiler which exploded belonged to a set of three feeding the same engine; the fuel used was bituminous coal. The furnace doors of all three of the boilers had been opened, and the dampers of two had been closed, when a gust of flame was seen to issue from the mouth of the furnace of these latter, and was immediately followed by an explosion. The interior flue of this boiler was flattened from the sides, the flue and shell of the boiler remaining in their places, and the safety-valve upon the latter not being injured.

Other similar cases of collapse might be stated, but as most of them have been attended by a defective supply of water in the boiler, the plates over the fire having become heated, they can scarcely be included in the category of this class of accidents, and more properly belong to those of which

we have just treated—explosions from a deficiency of water in the boiler.

It is, nevertheless, necessary to observe that cases of collapse should be carefully guarded against, as the great source of danger is in the escape of hot water, which, with the steam generated by it, produces death in one of its worst and most painful forms.

The remedies for these accidents will be found in the vacuum valve, and careful construction in the form and strength of the flues.

4th. Explosions from defective construction.—This is, perhaps, one of the most important divisions that can possibly engage our attention, and on which it shall be my duty to enlarge. In a previous inquiry I have already shown the nature of the strain, and the ultimate resistance which the material used in the construction of boilers, is able to bear. We have not, however, in all cases, shown the distribution and position in which that material should be placed in order to attain the maximum of strength, and afford to the public greater security in the resisting powers of vessels subject to so severe and sometimes ruinous pressure. This is a subject of such importance that I shall be under the necessity of trespassing upon your time, in endeavoring to point out the advantages peculiar to form, and the use of a sound and perfect system of construction.

For a number of years, the haystack, hemispherical and wagon-shaped boilers were those generally in use, and it was not until high-pressure steam was first introduced into Cornwall, that the cylindrical form, with hemispherical ends, and the furnace under the boiler, came into use; subsequently this gave way to the introduction of a large internal flue, extending the whole length of the boiler, and in this the furnace was placed. For many years this was the best and most economical boiler in Cornwall, and its introduction into this country has effected great improvements in the economy of fuel as well as the strength of the boiler. Several attempts have been made to improve this boiler by cutting away one-half of the end, in order to admit a larger furnace. This was first done by the Butterley company, and it has since gone by the name of the Butterley boiler. This construction has the same defects as the haystack or hemispherical and wagon-shaped boilers; it is weak over the fire-place, and cannot well be strengthened without injury to the other parts of the boiler, from the vast number of stays necessary to suspend the part which forms the canopy of the furnace. Of late years, a much greater improvement has, however, been effected by the double flue and double furnace boiler, which is now in general use, and has nearly superseded all the other constructions. It consists of the cylindrical form, varying from five to seven feet in diameter, with two flues, which extend the whole length of the boiler; they are perfectly cylindrical, and of sufficient magnitude to admit a furnace in each. This boiler is the simplest and probably the most effective that has yet been constructed. It presents a large flue surface as the recipient of heat, and the double flues, when rivetted to the flat ends, add greatly to the security and strength of those parts. It moreover admits of the new process of alternate firing, so highly conducive to perfect combustion, and the prevention of the nuisance of smoke.

To be continued.

Coal Mines in Tennessee.

We copy the following account of the coal trade of Eastern Tennessee, from the Chattanooga Advertiser:—

"Few persons are probably aware of the amount of coal brought to this place either for domestic consumption or for shipment to points below. We learn from Messrs. Vaughn and Thomson, proprietors of the coal yard in this place, that they are now sending down the railroad between three and four hundred bushels daily. Most of this is taken by the proprietors of the Etowah Iron Works. Several of the Georgia railroad companies also take a large amount. The demand is constantly increasing, and the trade is susceptible of an almost indefinite expansion; and when adequate facilities shall be afforded for carrying it on, it will take rank as a leading branch of business at this point.

The mine from which this coal is obtained is in Roane county, about 80 miles up the river. The bed is inexhaustible, and the expense of getting out the coal is comparatively small, so that it can be brought here and placed upon the cars at 15½ cents per bushel, and yield fair profits.

The proprietors now employ between 50 and 60 men. They contemplate placing a "Steam Tug" upon the river, for the purpose of towing their coal boats to and from the mine. This will so shorten the time and diminish the expense of transporting their coal, that they will be able to do a much larger business and with greater profits than at present.

In addition to this, the iron manufacturing company of this place, possess one of the best coal mines in the world, where they obtain their own supplies and from which an immense amount may be thrown upon the market as soon as the avenues of communication shall be sufficiently perfected, and its shipment to distant parts made profitable. The coal of East Tennessee is destined to become one of her greatest sources of wealth, and it gives us pleasure to bear testimony to the enterprise that is contributing to hasten on this result."

Operations upon the Rocks in Hurl-Gate Channel.

The work is now in successful operation for removing the rock obstructions from Hurl-Gate.

An iron float has been constructed, composed of two wrought iron cylinders, thirty inches in diameter, and forty feet long, tapering at each end. They are placed twenty-two feet apart, and confined in that position by large timbers. From the bow and stern large timbers extend eighteen feet, terminating in a point, making the float seventy-two in length. This float is now moored by four anchors, one at each quarter, within sixty feet of Pot Rock.

The first time the shaft was anchored upon Pot Rock three collisions with vessels passing the gate took place, one a day, the last tearing the float from its anchorage, and sending it adrift. Since it anchored the second time, but one collision has taken place.

Mr. Maillefert intended to anchor the float upon Pot Rock, to erect a large iron tripod, and drill the rock to the depth of thirty feet, by making a shaft eight inches in diameter, and firing the charge by a galvanic battery; but the difficulty of maintaining a safe anchorage on the rock has induced him to change his plan. He was provided himself with one hundred casks of Whipple's best glazed cannon powder, and commenced operations by firing the charges under water upon the surface of the rock. Four charges have been fired, which have been eminently successful. The first charges weighed eighty each, and the last sixty-three lbs. About four feet only of Pot Rock were blown off by the first two charges. The fragments of the rock brought up by the grappling, immediately after the blast, were still warm.

The charge is enclosed in a tin canister, strongly lashed, to which two iron rings are attached. A pole 20 feet long is employed, with an iron chisel in the end. The operator with this seeks a crevice into which he drives it; he then places the rings of the canister on the pole and lowers it to the surface. A bag of sand is affixed to add to the weight of the canister. A copper wire is attached to the canister, which communicates by a wire of platinum with the priming of the charge. Mons. Maillefert stations his battery on the float 60 feet from the rock, and from that he fires the charge. The water rises in a column of from 25 to 30 feet.

When the fourth charge was upon the rock, the steamer Hero came near, and had passed it less than a minute when it was fired, affording the passengers an excellent opportunity of seeing an explosion without danger, as the force of the explosion is downward. The canister is about 10 feet deep in the water. When charge is fired the water operates as a fulcrum.

An iron tripod of about four tons weight, constructed with slides, according to the suggestion of Mr. Chas. J. Shepherd, will be placed upon Way's Reef, and operations immediately commenced for drilling that rock to the depth of 24 feet. The shaft to be 8 inches in diameter, which, when charged, will be fired by a voltaic battery.

Banks in the United States.

The Boston Banker's Magazine gives a table showing the number, capital and condition of the Banks in all the States of the Union. Total No. of Banks 863; circulation, \$120,505,400; specie, \$41,446,000; capital, \$230,897,500. New York leads all other States, having 125 banks, with a circulation of \$18,000,000, while New York city has 28 banks and \$6,400,000 circulation. Massachusetts has 102 banks, with a circulation of \$9,600,000—Boston 30, with a circulation of \$6,000,000. Ohio stands next to New York, having 57 banks, with \$10,366,000 circulation. Her specie basis, however, is but \$2,780,000, while New York city banks have \$10,740,000 in specie. Boston has but \$2,400,000 of specie. Virginia has a bank circulation of \$7,000,000, and \$2,300,000 specie.—Pennsylvania about the same as Virginia. Philadelphia \$4,130,000 circulation and four millions of specie. Baltimore has \$2,068,000 circulation, \$2,127,000 specie, and its banking capital is set down at less than two millions. Louisiana, 5 banks, with \$4,200,000 circulation, \$7,300,000 specie and \$13,267,120 capital.

The Boston papers contain some curious and quite interesting statistics respecting the movements of the population of that city and its vicinity. On Saturday last 55 members of the police, under the direction of the chief marshal, took their respective stations at half-past six o'clock, A.M., and continued without intermission to keep regular count, until 7½ P. M., a period of thirteen hours.

During that time 41,729 persons came into the city, and 42,313 persons went out. This difference between the number entered and returned, can be accounted for from the fact that on Saturdays many leave for the country to pass the Sabbath. The number of vehicles which entered the city by the various routes, not including those which came from East or South Boston, numbered 6,626. The number that went out 7,063. The number of persons in the vehicles entering 14,942. The number of persons on foot entering 14,310—went out 12,887. The number by the passenger trains and freight trains, in, 12,271; out, 13,250.

During the day the arrivals and departures of railroad trains were as follows:—The passenger railroad trains which departed were 120, comprising 872 cars, and carrying 12,952 passengers. The inward passenger trains were 116, comprising 1,132 cars, and 11,963 passengers. The freight trains departed were 38, comprising 1,332 cars; and the freight trains arrived were 39, comprising 1,138 cars.

RECAPITULATION.

	Went out.	Came in.
Per passenger trains, 12,952	11,963	
" Freight " 307	308	
" Vehicles..... 15,964	14,942	
On Foot.... 12,887	14,310	
On Horseback..... 124	127	
With Handcarts.... 79	79	

42,313 persons, 41,729 persons.

Louisville and Nashville Railroad.

In view of the recent vote of the people of Louisville, authorizing the City Council to subscribe \$1,000,000 to the Louisville and Nashville railroad the Courier says:

To Kentucky, to the Union, we say that the Louisville and Nashville railroad will be commenced and completed as rapidly as abundant means and the aroused energies of our enterprising city will warrant. If the interior counties will respond to the spirit of Louisville; the locomotives will be running from Louisville to Nashville before the 1st day of January 1855. In less than two years from this day, the extension of the Jeffersonville railroad will be completed, and passengers may go by railroad from Louisville to every important city North, South, East or West.

Boston and Maine Railroad.

The following is an abstract of the report submitted by John Howe, Esq., the president of this company, at the annual meeting of the stockholders at Exeter, N. H., on the 10th inst.:-

The amount paid for construction account in the six months ending June 1st, 1851, was \$46,885 89
Paid for do. in June, July and August.. 26,373 84
The whole amount of construction account to the present time, is.....\$4,094,866 32

The liabilities of the corporation are stated as follows:-

Bonds.....	\$3000 00
Not payable.....	7000 00
Unpaid dividends.....	3837 50
do. do. payable July 1, 1851.....	145,449 50

Estimated amount due for land, bridges &c.....	90,000 00
Amount paid since June 1, 1851, for construction, which was then outstanding.....	6,386 40

In addition to above, \$150,000 are due for state loan, but not payable for several years.

The assets of the road are \$345,997 45. The expenses for the six months have been \$147,285 02, and the earnings (including \$7801 08 from the Portland, Saco and Portsmouth road) \$295,679 24. The earnings and expenses of the road for the months of June, July and August, 1850 and 1851, were as follows:-

Earnings.	
1850.	1851.
June.....\$48,245 46	\$53,194 64
July.....53,797 29	57,262 73
August.....56,960 75	54,253 99*
Expenses.	
1850.	1851.
June.....\$21,092 23	\$23,598 88
July.....23,446 79	23,810 80
August.....26,478 72	25,961 95

The whole line of the road has been recently examined, and found to be in a greatly improved condition. The portion between Boston and Lawrence, in all its appointments, is not surpassed by any railroad in New England, and that below North Andover, where the double track terminates, is being renewed by liberal outlays. The buildings along the line are generally adapted to the existing business of the road, except at Haverhill, Exeter and Plaistow, where the board will cause improvements to be made as soon as the prosperity of the company will render the expenditure expedient.

The amounts which have been paid on account of goods burnt in the freight house in November, have reached the sum of \$38,568 53; less received for insurance \$10,000, and very few of the acknowledged claims remain unpaid for property outward bound. These amount to \$1,163 26.

The board have the satisfaction to state that no claims for personal damage are known to exist at this time.

Three important suits have been determined recently in favor of the road. The first was the action of the Boston and Lowell road, instituted by reason of this road's asserting its freedom from tribute to that road. The second was that of Ebenezer Smith, for damages occasioned to his property by the occupancy of a part of Market street, in Boston for the passenger station. And a third was that of an individual claiming for the loss of a coat and

*Estimated—the earnings of this month have been somewhat reduced by the accident to the steamer Governor.

umbrella, which was ordered to be sent by a passenger train, unaccompanied by any person; in this case the superior court ruled that railroads were not liable as common carriers, in passenger trains, for merchandize or baggage, unless accompanied by a person, and thus settled a principle of great consequence.

In regard to the business of the road, it may be gratifying to the stockholders to know that in each year the earnings have been increased over those of the preceding year, and that its prospects are sufficiently encouraging to justify the expectation of an increase in future years. In evidence of this statement the earnings for the three past years and parts of years are subjoined:-

1848.		1849.	
Gross earnings.....	511,627 89	522,335 51	
Expenses.....	264,534 58	283,510 76	
Net earnings.....	247,093 31	238,824 75	
Earnings 1st 4 yr to June 1.....	223,470 11		
Expenses.....	114,509 91		
Net earnings.....	108,960 20		
Earnings June, July, August.....	139,013 98		
Expenses.....	86,523 83		

1850.		1851.	
Gross Earnings.....	594,963 45		
Expenses.....	289,478 02		

Net earnings.....	305,485 43		
Earnings 1st 4 yr to June 1.....	1,271,870 79		
Expenses.....	139,029 29		

Net earnings.....	132,841 50	148,394 26
Earnings June, July, Aug..	157,943 47	164,711 36
Expenses.....	71,721 95	73,371 63

Net earnings.....	86,221 52	91,339 73
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There is insurance on the property of the corporation to the amount of \$225,700. Five fatal accidents have occurred on the road since December. The Sabbath train was discontinued in November last. Abuses had grown up under its management requiring a remedy, and on applying that, it failed of support.

Pennsylvania.

York and Cumberland Railroad.—The stockholders of this company held a meeting at Baltimore on the 8th inst., on which occasion Eli Lewis, Esq., president of the corporation, submitted the third annual report, detailing the condition and operations of the road since its opening. From this document it appears that the expenditures on account of construction, prior to January 9, 1851, were \$524,117 31. The amount paid for construction since that period was \$165,345 28; making the total amount paid on account of construction to 1st September, 1851, \$689,462 59. To finish the construction of the road there will be needed the further sum of \$6,711 20. There may be some unsettled items, and the report therefore puts down the whole cost of construction at \$700,000, being at the rate of \$26,923 07 per mile. The liabilities of the company are set down at \$8,823 31; and its available means are stated to be \$19,207 23.

In addition to this, the company has a considerable amount of property, such as working stock, tools and materials for construction, which cost the sum of \$9,290 78.

The company has also expended for real estate the sum of \$12,729 35, a portion of which will not be wanted, and which can be sold at an advanced price.

The road was received from the contractors in

January, 1851. It was then in an unfinished state, and the company immediately commenced the construction of the road, and to place it in a proper and substantial condition.

This road was opened for trade and travel on the 3d of February last. Its gross earnings, including rents and United States Mail for six months, beginning with February and ending with July, amount to.....\$17,675 45

From this we deduct the following:

Cost of working the road for six months.....	\$7,278 84
Cost of repairs for road for six months.....	4,811 90
Salaries of officers for six months.....	1,179 99
Incidental expense for six months.....	733 80
	<u>\$14,004 62</u>

Nearly the whole amount of \$4,811 90, charged for repairs, ought properly to be debited to construction,—and if the road, when opened, had been finished, the net earnings for the first six months would have been about \$8,000.

This result cannot be considered as any criterion of what will be the future net earnings of the road. The cost of repairs has been heavy owing to the unfinished condition of the road when opened and the unavoidable necessity of large expenditures for this item.

The road has also been subject to many disadvantages since it was opened. At first it was worked for a short time by the Cumberland Valley railroad company, who agreed to terms more favorable than the Baltimore and Susquehanna railroad company did. The Cumberland Valley railroad company proved to be unable to work the road, and it was found to be to the interest of both companies to cancel the agreement made between them. When this result was found to be inevitable, an arrangement was made with the Baltimore and Susquehanna railroad company to work this road for twelve months, although upon terms less favorable than those agreed to by the Cumberland Valley railroad company.

When this arrangement was entered into, it was expected that the York and Cumberland road would be placed upon terms of equality with the Wrightsville road. For several months this was not done. The report says:-

"Our road was opened in February. The Baltimore and Susquehanna railroad company, instead of placing our road upon as favorable a footing as the Wrightsville road, continued to charge for goods destined for our road as much between Baltimore and York as those destined for the Wrightsville road paid the whole distance to Wrightsville.—Thus substantially and in effect making us pay for twelve miles of a road, no portion of which was used by us, and adding in the competition for business to which we were subject, twelve miles to our road. The discrimination has been continued during the six months of the working of our road.—Now mark the effect. The entire freight business or nearly so, between Harrisburg and Baltimore, has been transported on the Wrightsville route.—Our road has for these six months had little or none of this business; and this discrimination has also lessened the amount of business on our road from the Cumberland Valley, has seriously operated, as we believe, to decrease the trade of Baltimore and increase that of Philadelphia, the rival of Baltimore for this business.

When the York and Cumberland railroad company was first started it was believed that its connexion at Harrisburg with the Pennsylvania railroad and with the Pennsylvania canal, owing to its advantage in length over the Wrightsville route, and the superior facilities which it was supposed it

would furnish, would enable it to cause the trade to be diverted at Harrisburg, and thence by the York and Cumberland railroad and the Baltimore and Susquehanna railroad to Baltimore. This was our hope and expectation, and this the strongest motive for building our road. When, therefore, our road was put into operation, we exerted every effort in our power to induce the Baltimore and Susquehanna railroad company to remove all discrimination and give our road an opportunity to show what it could do upon fair and equal terms of competition with the Wrightsville road. All these efforts were vain until the month of June last, when the Baltimore and Susquehanna railroad company applied to the Mayor and City Council of Baltimore to approve of a law authorizing that company to borrow \$150,000. At this time, and when the Council was about to adjourn, some of the stockholders of our company, who desired that all differences between the companies should be settled, interposed their good offices and an agreement was made between the companies by which this discrimination was removed, and the two works, viz., the York and Cumberland railroad and the Wrightsville road were agreed to be placed upon terms of equality. This agreement was entered into on the 17th day of June last, but was not carried out by a change of tolls until about the 21st of August, when it was at last put in force."

There is reason to believe that the effect of the removal of this discriminating policy will be to largely increase the business of the company, and that the next return will show a corresponding amount of profits.

Connecticut.

Hartford and New Haven Railroad Company.—The annual meeting of the stockholders of this company was held in Hartford on the 10th instant. The receipts for the year ending Aug. 31, 1851, were \$556,004 58; net earnings, \$286,389 29. During the past year 446,128 passengers have been transported over the road—showing an increase of 50,253 over the preceding year. The number of miles run by passenger and freight trains, was 242,486—of gravel and wood trains, 11,405—making a total of 253,891 miles. The double track of eight miles in length between Berlin and Meriden has been completed, and this will be of great service to the future business of the road. During the past year, the balance of the capital stock of the company has been filled up to the amount authorized by its charter. The premium realized from the sale of the reserved shares, amounted to the sum of \$65,486 05—and the company is the gainer of this amount by having reserved the issue of the balances of its capital until the past year. The capital, now complete, amounts to \$2,350,000. The floating debt of \$75,758 57 reported at the last annual meeting has been paid. The directors have declared a semi-annual dividend of five per cent. payable on the 1st of October. This year a dividend of 15 per cent. has been made. The stockholders re-elected the old Board of Directors. At a subsequent meeting of the Directors, Charles F. Pond was re-elected President; Jas. H. Wells, Treasurer; and Horatio Fitch, Secretary.

Mississippi and Atlantic Railway.

The *Indiana Sentinel* says,—"Judge Underwood, of Illinois, has decided on a proceeding in the nature of a *Quo Warranto*, that this railroad company has the right to construct the road from St. Louis to Terre Haute without the sanction of any special act of the Illinois Legislature. The only power wanting is the right of way, there being no provision to condemn the lands for the road. This is a most important decision, and will secure the construction of this link in the great chain of eastern railway at an early day."

Indiana.

Lawrenceburg Railroad.—The following is a brief abstract from the report of the condition of the affairs of this company, submitted at the late meeting of the Board of Directors, in Greensburg, on the 1st instant:—

Entire cost of the work, from Lawrenceburg to Indianapolis, 90½ miles, including depots, water stations, engines, and rolling stock, complete	\$1,025,000 00
Amount of stock now subscribed, not including that taken at Indianapolis, the amount of which was not then ascertained,	459,799 00
Whole amount of work put under contract	250,578 86
Amount of work completed	93,026 87

The above amount does not include the contracts for timber or for cross-ties, some of which were closed during the meeting, and which now cover the line from the river to Greensburg, and are all payable in stock, except one-half of the portion required on the first seventeen sections which is half cash.

The amount of work yet to be done to complete the grade is as follows, including the usual percentage for contingencies:

On the first division 17 miles	\$32,558 22
On the second division, 25 miles to Greensburg	75,349 74
On the third division, 21 miles to Shelbyville	55,893 71
	\$163,801 67

—Of which \$85,635 68 is payable in cash, and \$78,165 99 in stock and real estate.

The iron for the first division, as also the necessary motive power and other machinery, are on their way to the west, and the company will commence laying track on the 1st of October. The lower twelve miles are now ready, the thirteen or fourteen miles will be graded by the 15th of October, and the residue in the course of the winter, so as to completed the track by spring.

Ohio.

Cleveland and Pittsburgh Railroad.—About seventy miles of this work is finished, from Cleveland to Alliance, and the rest is in rapid progress of completion to Wellsville. As yet the regular cars run only to Ravenna, but it is the intention of the directors to have the entire track to the Ohio completed and cars running through the whole line this fall. From Wellsville to Beaver also the work is in progress.

During the week ending September 6th, 3373 passengers passed over this road. The Plaindealer of the 5th inst., says,—"The business over the Cleveland and Pittsburgh railroad continues to increase daily. At New Franklin, a thriving town on the line in Stark county, they are building large and commodious warehouses for the purpose of receiving wheat for the Cleveland market which has been sent to Massillon heretofore. Cleveland will receive over this road, from this town alone, some 400,000 bushels per annum. The farmers in this section will get the Cleveland prices for their wheat, less freight only, which is five cents per bushel better than the Massillon market. This company have transported over their railroad for the Pittsburgh and Ohio road 400 tons of railroad iron. The road is running the entire length, with the exception of some twenty-five miles which will be completed within 50 days. We learn that 1,500 passengers passed over this road one day this week, bringing the receipts, freight included, up to \$3,000."

Tennessee.

East Tennessee and Virginia Railroad.—We have received the first annual report of Lloyd Tilghman, Esq., Chief Engineer of this company, submitted to the President and Directors. Three routes were surveyed from the Virginia line to Knoxville, as follows:

The first, or northern route, length 125 miles, would cost \$1,239,000.

The middle route, length 125 miles, would cost \$1,227,400.

The southern route, length 128 miles, would cost \$989,000.

It will be seen that although the southern route is three miles longer than the others, it will cost \$240,000 or \$250,000 less than either of them.—The character of this route is much better, as regards grades, curves, &c. In addition to these considerations, is the still greater one that the business which the southern route would command, would be of vastly greater extent and importance than that of either of the other routes.

The final location of the road may be assumed to be nearly as follows: beginning at or near King's Meadow, on the Virginia line, thence to Middletown on Holston river, Lacy's on Watauga, by Brush creek, &c., to Jonesboro', thence by Urbana Meeting-house, Rheatown to Greenville, thence by way of the Blue Spring to Bull's Gap, New Market Valley, to Knoxville.

The superstructure and equipment are estimated at	\$1,228,628 57
Which added to the above estimated cost of graduation and masonry ...	968,000 00

Would make the total cost of the road

—being an average cost per mile of about \$17,300.

Canada.

Railroad from Quebec to Melbourne.—We have just seen in the *Quebec Gazette*, the report lately made by A. C. Morton, Esq., upon the survey of the line for this important road, designed to connect Quebec with the St. Lawrence and Atlantic railroad at Melbourne or Richmond. As a means of connecting Quebec with the Atlantic and thus constituting a very important tributary to the great line between Portland and Montreal, this projected road has been regarded with great interest.

The distance is from 90 to 100 miles, dependent somewhat upon a choice of routes in particular parts. The survey, which was made by others, under the direction of Mr. Morton, was of a preliminary nature only, and the results are but approximations. As we have not the means of illustrating these results by reference to minute maps of the country, we are the less able to appreciate or to exhibit the merits of them. It seems the surveying parties were instructed to proceed upon a plan which involves the crossing of the St. Lawrence, at points some miles above Quebec,—thus contemplating in fact two distinct pieces of road, separated by the river. We are not apprised of the reasons which induced this mode of procedure. The report intimates that a practical line might be found so as to admit of crossing the river opposite Quebec itself.

The actual descent to the bed of the St. Lawrence involves very considerable engineering difficulties—the immediate banks being high, and penetrable only by the courses of narrow and circuitous streams. Very considerable grades would be required for this purpose. There is no difficulty, however, greater or more objectionable than what has been encountered upon many important and valuable American lines.

Estimates are given by the engineer, for the cost of the work, which show that it can be constructed within very reasonable limits of expense.

We hope this work may command such an interest in Quebec, as will secure further and more minute surveys. In that case, more favorable results, in anticipation of construction, would undoubtedly be attained, and the work brought to such

a condition of promise, as to insure its immediate commencement and early completion.—*Portland Advertiser.*

American Railroad Journal.

Saturday, September 20, 1851.

Mr. Poor is still prevented by illness from attending to his accustomed duties.

The Great Railroad Jubilee at Boston.

This event, looked forward to with so much interest by our Boston neighbors, and the citizens of the Bay State generally, has come off with an *éclat* even surpassing the expectations of the most sanguine of its projectors. The Editor of this Journal being seriously indisposed and not having a reporter on the spot, we shall make but few remarks on the subject this week, but promise a more extended account in our next. Among the distinguished guests of the city of Boston, present, we notice the President of the United States, Mr. Webster, and several other members of the cabinet, and Lord Elgin, Governor General of Canada, together with a large number of the most eminent men from various parts of the Union and the British Provinces. The speeches and other proceedings, which fill a very large space in the daily papers, we shall endeavor to compress next week into a form better suited to the Railroad Journal. Our readers will therefore excuse us for not filling our columns with details, which are better adapted to those of the daily press. It is a subject that will bear keeping.

Maine.

York and Cumberland Railroad.—Contractors will find in our advertising columns a call for proposals for completing the line of this road. The directors, as we learn from the Portland Advertiser, have been diligently at work since the annual meeting in the preparatory measures required to carry forward the work to completion.

The road from Portland to Gorham is doing a fine business, and assurances for a successful prosecution of the work are more flattering than at any previous period.

Fair of the Maryland Institute.

It will be seen by an advertisement on another page, that the fourth annual exhibition of American manufactures, by the Maryland Institute for the promotion of the mechanic arts, will be opened in Baltimore on the 20th of next month. We are happy to learn from the Baltimore papers that the splendid Hall now in course of construction is rapidly advancing towards completion, and that it will be fully ready in time for holding the approaching Annual Fair within its ample walls. When fully completed, the new Hall will take rank amongst the most beautiful and substantial public buildings of the monument city. It is 355 feet in length by 60 in breadth, with an average height of 68 feet, constructed at an expense of over \$70,000, and affords every facility for displaying the various productions of American industry and skill, to the best advantage.

It should be borne in mind that all articles intended for exhibition at the coming fair, must be deposited on or before the 16th of October.

Massachusetts.

Charles River Railroad.—The Boston Post states that the grading on this road is going on steadily. A section from Cyprus street up by Bradley's hill in Brookline is nearly ready for the rails, and is the nearest to the city of any work on the route.

South Ohio Railroads.

We understand that on the 3d September, the Hillsborough and Cincinnati railroad company, let the grading and masonry of their road, Eastward of Hillsborough, to a point near the crossing of Paint Creek.

This is the first step upon an independent line across Southern Ohio to Belpre, the terminus lately abandoned by the Marietta and Cincinnati company.

This latter company, therefore, find that the first effect of their embarkation upon the Philadelphia route, has been to raise up a competition, which appears determined to run a rival line across the state a few miles south of them, and in many places parallel, at a short distance.

Whatever may be the result of the strife between these competing lines—and on all ordinary principles it must be unfavorable to both—it seems, nevertheless, to be a step of self-preservation on the part of the Hillsborough company, abandoned as they were, and threatened to be crushed by their opponent.

Virginia.

South Side Railroad.—We would invite the attention of contractors to the advertisement on another page, from the chief engineer of the South Side railroad, requesting proposals from railway contractors for grading about thirty miles of this road, commencing at Farmville and extending westward—the work to be let in the town of Farmville, on the 15th day of October. This letting will comprise rather more than half the distance between Farmville and Lynchburg, and the Petersburg Intelligencer thinks the whole line from that city to Lynchburg, will be finished in the course of eighteen months. When finished, it will also place Richmond in railroad communication with Lynchburg.

Orange and Alexandria Railroad.—The third section of the Orange and Alexandria railroad is about to be given to contractors; it will complete the line to Gordonsville. The branch road to Warrenton of 8½ miles is also about to be let to contractors.

Illinois.

Galena and Chicago Railroad.—The cars now run on this road to Huntley's, thirteen miles beyond Elgin, and fifty-two miles from Chicago. In two or three weeks it is expected that Marengo will be reached, and by the middle of November, that the cars will run to Belvidere, thirty-seven miles beyond Elgin. The grading on this section is all completed, and the work of laying the track is rapidly progressing. The grades are easy on the whole line.

Alton, Mount Carmel, and New Albany Railroad.—The president of this company has advertised for proposals for the graduation of a portion of the road upon each side of the Wabash, at Mount Carmel, and also for the branch of said road beginning at Illinois town, and running eastwardly to the Central railroad, *via* Caseyville, Lebanon and Carlyle. This branch is doubtless intended to do away with the necessity of constructing the railroad from Illinois town to Vincennes.

Illinois.

Northern Cross Railroad.—Within the past few weeks, 28 miles of the Northern Illinois Cross railroad, running East from Quincy, have been put under contract, to be completed in running order by the 4th of July next. The company have disposed of \$100,000 of the city bonds of Quincy without trouble.

Kentucky.

Maysville and Lexington Railroad.—Henry Waller, Esq., has been elected president of the Maysville and Lexington railroad company, in place of Gen. Richard Collins, resigned.

Stock and Money Market.

There has been but slight change in the money market during the past week. First class paper is in good demand, and the supply being moderate, purchasers are obliged to offer better terms; other descriptions are plenty. There is some prospect for improvement, yet while capitalists can employ their money at the present high rates upon good paper, there will not be much enquiry for stocks; and the mercantile world have sufficient employment for theirs in the prosecution of their regular business. Under these circumstances it is advisable to keep bonus of new works out of the market, as they could only be disposed of at serious discount, which might tend to affect their future credit injuriously. Considerable quantities of cotton are now going forward to tide-water, the crop being about twenty days earlier than last year. This will bring a supply of Southern bills sooner than has been anticipated, which will afford some relief in the exchange market.

The Evening Journal gives the annexed statement of the quantity of flour, wheat, corn and barley, left at tide water during the 2d week in September in the years 1850 and 1851, as follows:

	Flour.	Wheat.	Corn.	Barley.
	bbls.	bush.	bush.	bush.
1850...	115,825	138,582	77,357	124,416
1851...	96,368	57,169	245,435	47,357
Dec....	19,457	81,413	Inc. 168,078	de. 77,059

The aggregate quantity of the same articles left at tide water from the commencement of navigation to the 14th Sept., inclusive, during the years 1850 and 1851, is as follows:

	Flour.	Wheat.	Corn.	Barley.
	bbls.	bush.	bush.	bush.
1850...	1,363,152	980,147	2,669,642	328,092
1851...	1,980,100	1,504,018	5,666,140	224,920
Inc....	616,948	523,871	2,996,498	dec. 103,172

The aggregate quantity of the same articles left at tide water from the commencement of navigation to the 7th Sept., inclusive, during the years 1849 and 1851, is as follows:

	Flour.	Wheat.	Corn.	Barley.
	bbls.	bush.	bush.	bush.
1849....	1,501,120	1,052,853	3,897,686	117,494
1851....	1,980,100	1,504,018	5,666,140	224,920
Increase.	478,980	451,165	1,768,454	107,426

By reducing the wheat to flour, the quantity of the latter left at tide water this year, compared with the corresponding period of last year, shows an increase of 721,722 bbls. of flour.

Erie Canal.—The amount received for tolls on all the New York State canals during the 1st week in September, is.....\$102,701 94
Same period in 1850.....104,621 57

Increase in 1851.....\$1,919 63

The aggregate amount received for tolls from the commencement of navigation to the 7th September inclusive, is.....\$2,040,950 11
Same period in 1850.....1,771,427 21

Increase in 1851.....\$269,523 90

Galena and Chicago Union Railroad.—The receipts of this railroad for the first four months of their financial year, exceed the estimates \$10,000. Earnings for August, \$12,109 13. In August of last year, the receipts amounted to \$7,399 51. Increase, \$4,709 62, or 65 per cent.

Baltimore and Ohio Railroad.—The receipts of this railroad for the month of August have been as follows:

	For passengers.	For freight.
Main Stem.....	\$33,417 51	\$69,254 80
Washington Branch.....	20,268 57	3,905 27

Total..... 53,686 08 73,160 07

Making an aggregate of \$102,672 31 on the Main Stem, and \$24,173 84 on the Washington Branch—the total being \$126,846 15.

The above, compared with the corresponding month of last year, shows a decrease of \$2,651 50 on the Main Stem, and 2,757 63 on the Washington Branch.

Little Miami Railroad.—The receipts for the two past weeks were..... 22,118
Last year, same time..... 18,257

Increase..... \$3,861

Cheshire Railroad.—The receipts for the Cheshire railroad for the first eight months of 1850 and '51, were as follows:

	1850.	1851.
January.....	13,159 75	14,687 82
February.....	11,705 07	15,008 84
March.....	14,277 52	16,739 35
April.....	15,325 85	19,345 53
May.....	14,951 89	18,187 82
June.....	15,262 91	18,044 26
July.....	16,962 36	18,043 15
August.....	23,131 20	26,086 25

\$124,776 55 \$146,143 02

Madison and Indianapolis Railroad.—The receipts for the week ending Aug. 30 were.. \$6,792 43
For the week ending Saturday, Aug. 31st

1850..... 4,235 65

Excess..... 2,556 78

Cleveland and Pittsburgh Railroad.—The business of that portion of the Cleveland and Pittsburgh railroad between Cleveland and Ravenna, 38 miles, for 5½ months, foots up as follows:—

Whole number of passengers 44,836.... \$33,141 30
Whole amount of freight..... 19,464 68

Gross earnings..... 52,605 88
Expenses for the same period..... 17,536 00

Net earnings..... 35,070 88
Ten per cent per annum upon \$700,000
(the cost of the portion referred to).... 32,084 00

Leaving a surplus of..... \$2,986 88

Louisville and Frankfort Railroad.—The receipts on the Louisville and Frankfort railroad for the first seven days in this month, for passengers alone, exceed \$2,800, being a fraction over \$400 per day.—The business of that road appears to be increasing daily.

Welland Canal.—The business of the Welland Canal this season is much increased over last year. During the month of August, 465 vessels passed through, nearly double the number that passed in the same month last year.

Imported Merchandise.—An opinion has been expressed that the importations of foreign merchandise this year were much less than those of the preceding year. The following authentic facts are from the National Intelligencer:—

During the fiscal year ending the 30th of June, 1851, the gross receipts from customs were about \$50,000,000.

From the 1st of July to the 6th of September, the receipts from this source will compare as follows:

1850, about..... \$12,200,000
1851, about..... 11,700,000

Decrease..... \$500,000

There is a decrease in 1851 during this period at

New York of about \$900,000, and an increase at each of the other ports.

At the ports of New York, Boston, Philadelphia and Baltimore, during the first week in September, the receipts were as follows:—

1850..... \$843,543
1851..... 946,558

Illinois and Michigan Canal.—The amount of tolls collected during the month of August, was \$20,346 14. Total receipts from the opening of navigation to the 1st of September, 1851, were \$112,437 25.

Morris Canal.—The receipts for the week ending September 7th, were \$4,796, showing an increase of \$3,946.

Coal Trade.—The Lehigh Navigation Company brought down, for the week ending on Saturday last, 31,997 tons, and for the season, 675,445 tons. The Reading railroad company brought down, for the week ending on Thursday, 39,425 tons, and for the season, 1,215,538 tons. The Schuylkill navigation brought down for the week 19,067 tons, and for the season 397,082 tons. The aggregate tonnage for the week is 90,489 tons, and for the season 2,288,065 tons. The activity of the trade is not confined to the carrying companies, but the same feeling is manifested in all the markets for anthracite coal throughout the Union.

Railway Share & Stock List;

CORRECTED WEEKLY FOR THE

AMERICAN RAILROAD JOURNAL.

NEW YORK SEPTEMBER 20, 1851.

GOVERNMENT AND STATE SECURITIES.

U. S. 5's, 1853.....	100½
U. S. 5's, 1856.....	105½
U. S. 6's, 1862.....	110
U. S. 6's, 1862—coupon.....	113½
U. S. 6's, 1867.....	115½
U. S. 6's, 1868.....	116
U. S. 6's, 1868—coupon.....	122½
Land Warrants.....	140½
Arkansas 6's.....	52½
Alabama 5's.....	91½
Indiana 5's.....	79
Illinois 6's, 1870.....	65½
Kentucky 6's, 1871.....	105½
Massachusetts sterling 5's.....	105½
Massachusetts 5's, 1859.....	100½
Maine 6's, 1855.....	103
Maryland 6's.....	102½
Michigan.....	—
Mississippi.....	—
New York 6's, 1865.....	117½
Ohio 6's, 1860.....	109½
Pennsylvania 5's.....	91

RAILROAD BONDS.

Atlantic and St. Lawrence, 6 per cent.....	85
Baltimore and Ohio, 1867.....	94½
Boston and Providence 6's, 1855.....	101
Boston and Worcester 6's, 1855, convertible.....	107½
Bost., Concord and Mont. 6's, 1860, mortgage.....	87½
Cheshire 6's, 1860.....	91½
Connecticut River 6's, convertible.....	98
Erie 7's, 1859.....	98
Erie 7's, 1868.....	108½
Erie income 7's.....	92
Hudson River 7's, 1853.....	101½
Michigan Central, convertible, 8's, 1856.....	104½
New York and New Haven.....	100½
Norwich and Worcester, mortgage, 1860.....	80½
Old Colony, 1854.....	97½
Ogdensburg 7's, 1859.....	94
Portsmouth and Concord.....	80½
Passumpsic 6's, 1859.....	94½
Rutland 7's, 1863.....	97
Reading mortgage, 1860.....	80
" " 1870.....	75
Sullivan, mortgage 6's, 1855.....	75
Vermont Central 6's, 1852.....	93
" " 6's, 1856.....	93
Vermont and Massachusetts 6's, 1855.....	85

RAILROAD STOCKS.

[CORRECTED FOR WEDNESDAY OF EACH WEEK.]

	Sept. 17.	Sept. 10.
Albany and Schenectady.....	89½	—
Atlantic and St. Lawrence.....	60½	—
Androscoggin and Kennebec.....	30½	—
Boston and Maine.....	103	104½
Boston and Lowell.....	109	109
Boston and Worcester.....	101	100½
Boston and Providence.....	84½	87
Bost., Concord and Montreal.....	40	—
Baltimore and Ohio.....	71½	—
Baltimore and Susquehanna.....	36	—
Cheshire.....	53	—
Cleveland and Columbus.....	—	—
Columbus and Xenia.....	—	—
Camden and Amboy.....	—	—
Connecticut River.....	60	—
Delaware and Hudson (canal).....	—	—
Eastern.....	95	96
Erie.....	79	78
Fall River.....	92½	92½
Fitchburgh.....	108½	108½
Georgia.....	—	—
Georgia Central.....	—	—
Harlem.....	68½	68½
Hartford and New Haven.....	124	—
Housatonic (preferred).....	52	—
Hudson River.....	71½	71½
Kennebec and Portland.....	50½	—
Little Miami.....	—	—
Long Island.....	15½	14½
Mad River.....	—	—
Madison and Indianapolis.....	92	—
Michigan Central.....	104	104
Montgomery and West Point.....	—	—
Michigan Southern.....	—	—
Manchester and Lawrence.....	97	89
Morris (canal).....	14½	15½
New York and New Haven.....	106½	106½
New Jersey.....	133	—
Northern.....	66	66½
Nashua and Lowell.....	107½	—
New Bedford and Taunton.....	11	—
Norwich and Worcester.....	50	49½
Norfolk County.....	20	—
Ogdensburg.....	34	33½
Old Colony.....	65½	66
Passumpsic.....	80	—
Pennsylvania.....	—	—
Pittsfield and North Adams.....	95	—
Philadelphia, Wilm'gton & Balt.....	28	29
Petersburg.....	—	—
Richmond and Fredericksburg.....	—	—
Richmond and Petersburg.....	—	—
Reading.....	55	55½
Rochester and Syracuse.....	106	106½
Rutland.....	53	45½
Stonington.....	43	42½
South Carolina.....	—	—
Syracuse and Utica.....	123½	—
Sullivan.....	25	—
Taunton Branch.....	108	—
Troy and Greenbush.....	90	—
Tonawanda.....	—	—
Utica and Schenectady.....	127½	—
Vermont and Canada.....	99½	99½
Vermont Central.....	33½	35½
Vermont and Massachusetts.....	25½	27
Virginia Central.....	—	—
Western.....	103½	102½
Wilmington and Raleigh.....	—	28½
York and Cumberland (Pa.).....	20	—

Pennsylvania.

The Pittsburgh and Erie Railroad.—The Erie Gazette says that the arrangements for commencing this important work are progressing with all possible despatch. The contractors intend to put a strong force on each section just as soon as the necessary right of way can be secured—the success of which, at an early day, is scarcely a matter of rational doubt. Public feeling in favor of the road is also daily strengthening, and doubtless when its construction shall have been undertaken in a bona fide way, there will be a universal and cordial acquiescence—such as its intrinsic importance authorizes and demands.

Hempfield Railroad.

A report has recently been submitted by Charles Ellet, jr., Esq., Chief Engineer of this road, showing the progress of the preliminary surveys and giving some calculation of the business which the road will command when it shall have been completed.

Two corps of engineers were organized, one of which commenced at Wheeling, and proceeded to make a careful location of a line towards Washington; the other commenced at Greensburgh, and following the valley of the Big Sewickly, have progressed with a similar survey as far as the Yohio-geny. In addition to this regular survey, experimental lines have been carried a head, on the route where the parties are now at work, as far as the Monongahela at the eastern end, and into the valley of the Chartier, on the Western division. The result shows that by adopting sixty-six feet per mile as the highest grade, there will be four tunnels needed upon this line. The first and greatest of these will be found in the "Forks" between the Yohio-geny and Monongahela; the second at Brady's Hill east of Washington; the third will be an extremely short one, under the new grave yard at Wheeling creek; the fourth will be required at Wheeling whenever the Ohio roads are brought across the Ohio river on the suspension bridge. But this last tunnel will not be needed for the accommodation of the trade of the Ohio river. Leaving out of view this fourth tunnel, the opening of which may be postponed, the total cost of all the tunnels on the line now under consideration, will be about \$240,000, if the material be of a character that may be trusted without arching. But if the rock cannot be trusted to support itself, the total cost of all the tunnels on this line will reach \$300,000.

There are other depressions which will be shortly surveyed for crossing the ridges in the Forks, on one of which no tunnelling is necessary. But the merits of that route, in other particulars, have not yet been submitted to instrumental examination.

Mr. Ellet states that the line which he is establishing for the purpose of comparison, is laid out for a maximum grade of 66 feet per mile. The surveys are not yet far enough advanced to ascertain the length of this route, but it will probably not differ much from 79 miles. He proposes, as soon as the two parties now in the field meet upon the present line, which will be in a few days, to place one corps upon the line diverging to the north, by the way of Peter's creek, Elizabethtown and the Little Sewickly; and the other upon that diverging to the south, by Pigeon creek, Maple creek and Belvernon.—This party will also establish the line down Pigeon creek to Monongahela city. A third party will soon be placed on the route of Brushy run and Buffalo creek.

Until the completion of the several surveys now in progress, he can express no definite opinion on the relative merit of the different lines.

In alluding to the prospect that the Hempfield road is destined to be the thoroughfare for an immense traffic, he mentions first the way trade. In a belt of about eight miles in breadth on each side of either of the probable lines of the road, there are not less than 30 towns and small villages to supply it with trade and travel.

But the principal reliance is upon the traffic from the Ohio river. Without going into details which are adduced as the basis, upon which Mr. Ellet forms his deductions, we will give the estimated result:

Freight, 120,000 tons, at \$2 50	\$300,000
87,500 passengers at \$2 50	218,750

Total annual receipts	\$518,750
Expenses estimated to be about	258,750

Leaving net profit	\$260,000
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This is ten per cent on a capital of \$2,600,000.—He believes this estimate to be much within the mark, and expresses the confident expectation that the Hempfield road when provided with a double track, and thoroughly equipped, with all its machinery in action, will be fully employed at the outset and will soon be found unequal to the task of accommodating the traffic that will seek that route of transportation.

Railroad Meeting at Pittsburg.

A meeting was recently held at Pittsburg, to take into consideration the propriety of building a railroad along the Allegheny river, to connect with Rochester and Lake Ontario. Thomas Bakewell, Esq., called the meeting to order, and Mr. Samuel Rea officiated as secretary. The meeting was addressed by several gentlemen, who pointed out the importance of the proposed railroad to the interests of Pittsburg, affording, as it would, a cheap and direct route through the Genesee valley, to Rochester and Lake Ontario.

Resolutions were unanimously adopted, to the effect that the interests of western Pennsylvania emphatically demand the speedy completion of a railroad along the banks of the Allegheny river, communicating with the iron regions of Clarion county, and the inexhaustible pine forests of northern Pennsylvania, and opening by the Genesee valley the markets of northern New York and western Canada to the products of their industry; that the proposed enterprise would give a healthful impulse to the manufactures of their vicinity; that it would furnish the cheapest and most direct route for distributing the sugar, cotton and tobacco of the west and south among the populous agricultural districts of western New York and Canada, thereby yielding a new impetus to the steam navigation of the Ohio; and that such a road would not only most materially influence the prosperity of the region through which it may pass, but would also prove a source of profitable investment to those enterprising contributors by whom it shall be constructed.

It was stated that the citizens of Rochester were to give three hundred thousand dollars for the commencement of this enterprise; and a committee, consisting of seven gentlemen, were appointed, to take such measures as may be deemed expedient for the furtherance of the project. The distance between Pittsburg and Olean, N. Y., is about 180 miles, and Rochester is 100 miles from the latter point; thus the length of the road would be only 280 miles, and it is supposed the grades would be but slight.

The Pittsburg Gazette thinks that the people along the line of this road could be depended upon to prepare the road for the superstructure, and to furnish the necessary timber. At least this may be expected, it says, for the first hundred miles from Pittsburg. If the construction begun at Pittsburg, it would, says the Gazette, by the time it reached the mouth of the Kiskiminetas [29 or 30 miles] pay a fair profit. Fourteen miles further would bring the road to Kittanning, another point where a considerable amount of business would be thrown upon it. From Kittanning to the mouth of Mahoning, 12 miles, is a rich iron region, which would furnish a large amount of trade both ways. A few miles

further, Redbank is reached, at which place nearly all the trade and travel of Clarion county would be gathered in. From this point it is proposed by some that the road ought to leave the river, pass up the valley of Redbank a few miles, strike across to the Clarion, and thence up the valley of the latter stream to its source, and thence across the dividing ridge [said to be low] to the heads of the Allegheny, and down the latter to Olean. This the Gazette thinks is probably the shortest route. Others are in favor of continuing up the Allegheny to the mouth of the Clarion, and thence up that river to Olean, as above stated. This is the next shortest route, and has the advantage of but a single summit between Pittsburg and Olean. Others again are in favor of following the river all the way up to the point where the New York and Erie railroad leaves it for Dunkirk, some 20 miles below Olean. For this latter route there is a charter for a railroad from Pittsburg to the State line.

Boston, September 16th, 1851.

H. V. Poor, Esq.

Dear Sir,—Having noticed in late numbers of your journal, remarks by several parties, in relation to the gauge of railroads, I have taken the liberty to present you with some particulars having reference to this matter.

In your paper of Saturday last, your communication from Paterson (I presume by Thomas Rogers) points chiefly to two difficulties, or rather objections, attendant on the adoption of the 4 feet 8½ inch track. The first is the extra height required by these engines for the boiler. The second, the increased length of the tubes often found necessary for large engines.

As to the first objection, I will say locomotives are classed in two general arrangements, namely, outside and inside connections. With an outside connection, there is never any difficulty in placing the boiler as low as it will clear the driving axles; the axles of the largest wheels, immediately beneath the boiler, being the limit of reduction of the height.

With an inside connection beyond this limit, is the space required for the cranks, and the end of the connecting rod attached thereto, to revolve, without striking the under side of the boiler. With an inside connection for the narrow gauge, the cylinders are usually 24 inches between the centers, sometimes 26 inches, never more, as that is all the width of the frame will allow. With cylinders at this distance apart it requires from 15 to 16 inches from the center of the axle to the under side of the shell of the boiler for the clearance of the machinery. 16½ inches is the greatest height given by any builder in New England, and the clearance can be made in 15 inches.

With the engines of the class of the Nos. 100 to 111, inclusive, built and building at Paterson for the New York and Erie railroad, the cylinders are placed at the widest limit between their centers, which is 37½ inches, and the clearance from the centre of the axle to the under side of the boiler is 14 inches. The utmost that could be gained in the reduction of the height of the boiler for the 6 feet gauge, above the 4 feet 8½ inches, would be 3 inches, and the practice on the Erie engines, has seldom gained as much as 2 inches.

As to the second difficulty, of making a necessity for large tubes for engines for the narrow gauge, I will say that there are not 6 engines, out of nearly 500 engines, which I have seen running on narrow gauge roads, where the length of tubes exceeds 11 feet. The usual length on the Erie road is 11½ feet;

1 engine has 12 feet tubes, 6 engines have 12½ feet tubes, 17 have 13 feet tubes (all built at Paterson), 2 have 13 feet 8 inch tubes, and 4 have 14 feet tubes, the latter, 3 feet longer than any others in the country, with perhaps a very few exceptions, as in the case of the engines employed on the heavy grades of the Baltimore and Ohio railroad, and in like other difficult situations.

The freight cars employed upon the New York and Erie railroad have an average weight of 14,500 lbs., about 2,500 lbs. more than the usual weight of the same class of cars upon the narrow gauge roads, (for the content of the cars employed upon most of the narrow gauge roads, is fully equal to that of the Erie cars. 28 feet long by 8 feet wide is the usual size on narrow roads, and 26 feet by 8½ feet is the size on the Erie road: the height is the same on both.) 25 of the Erie cars, with the usual loading of freight, is an extreme load for engines of 32½ tons weight, now running from Piermont to Port Jervis. I have often seen as heavy a load drawn over as difficult grades by engines of 21 tons weight, running upon a narrow road.

Your correspondent closes by stating that it is his opinion, that the track of the wide gauge would require less for repairs than the narrow one, as the weight of the engine and cars is more equally divided upon the broad track. I do not understand this latter paragraph. I am aware that the heaviest of narrow gauge engines have about 8,000 lbs. pressing at each driving wheel upon one point in the rail. There are engines upon the Erie road where this weight is 11,500 lbs., really quite a difference, and likely to exert a corresponding tendency upon the expense of repairs. The majority of narrow gauge engines have 6,500 lbs. on each driving wheel; the majority of Erie engines have 8,500 lbs. on each driving wheel, which increased weight acting upon a rail of usual weight seems to me to be likely to enhance the expenses of repairs very much.

Yours, Respectfully,
ZERAH COLBURN.

Baltimore and Ohio Railroad.

Our Railroad Connections Westward.—The strong affinities which connect Baltimore with the central regions of the West and point to this city as the best Atlantic emporium of their trade will be powerful enough, we doubt not, to overcome all efforts from other quarters to defeat such connections and to divert the trade to less eligible points. The line of connection which is to bring Cincinnati into communication with the eastern seaboard is made up or is to be made up of several sections uniting intermediate points. Our Philadelphia neighbors have succeeded in prevailing upon one of those sections to make its termination at Marietta instead of Belpre opposite to Parkersburg, as originally contemplated—although the privilege yet remains to carry it to Belpre when there shall be occasion—and upon this success our neighbors plume themselves not a little.

But in the meantime behold the progress of the Cincinnati and Hillsborough railroad which is striking direct for Parkersburg! The Hillsborough Gazette announces the letting of a contract for the completion of that road to Hillsborough, by the first of January next, and goes on to say further:—
“At the same meeting of the Board, fourteen miles of road east of Hillsborough, on the Paint Valley route, was let to the same company, (Messrs. Currie, Cushman & Crane,) who expect to do the grubbing and necessary quarrying this winter, preparatory to the grading and masonry in the coming spring. Both these lettings were effected on terms considered highly favorable to the interests of the stockholders, and 25 per cent of the entire work, east and west, is to be taken in the stock of the company at par.

“Proposals for six additional miles, east of the

fourteen let, reaching to the Big Falls of Paint, were received, but have not as yet, been decided on, but we are assured will be in a few weeks at farthest. This 20 miles of road, east of Hillsborough, when completed, (which is confidently anticipated by the 1st of January, 1853,) will give us eighty miles of running road, on the direct through line from Cincinnati to Parkersburg; leaving but 100 miles to finish to secure one of the most desirable and certainly one of the best paying roads on this continent.

“This intelligence, which we are fully authorized to communicate to the public, will be gratifying not only to our people at home, but to the citizens of Cincinnati and Baltimore, whose best interests are so closely identified with the issue of this great work, which now promises so fair for successful progression; and it now only remains for the people of those cities and the Baltimore and Ohio railroad company to make the proper demonstration to ensure the completion of the entire work hence to Parkersburg in two years, and thus put Cincinnati and Baltimore in connexion on the shortest practicable route that can be projected, in the shortest possible length of time.

“We learn that the Board of Directors at their late session here ‘Resolved’ to employ Elwood Morris, Esq., civil engineer, to commence, at the earliest day practicable, with a corps of engineers, and run a direct line from Parkersburg to the Big Falls at Paint creek, reconnoissances having already been made sufficient to satisfy the company of the entire practicability of such a line, both in grades and expense of construction. Success to the enterprise say we.

“Since the action of our Board of Directors, at its late meeting, there is, we are happy to say, a decidedly better state of feeling among our citizens in regard to our railroad interests. Whatever differences of opinion may have existed heretofore, in relation to railroad routes and railroad policy, we think we are fully warranted in saying that our people are now, almost without an exception, determined to co-operate in harmony, and to concentrate their energy and influence in pushing on our own road, in accordance with the present policy of the company.”

Thus we may see how the superior advantages of our Central route are appreciated beyond the Ohio; and thus may we learn to bring home to ourselves the obligations under which we rest to do our part towards the completion of a connection so ardently desired by our Western friends, and from which they with reason anticipate such high returns. We can venture to assure them that Baltimore will not be behind-hand in doing her part in the great work of accomplishing so desirable a connection—the advantages of which we should be blind indeed not to estimate as of the highest importance.

Whatever other routes may be projected, whatever connections may be formed by local interests from Cincinnati eastward, we may be sure that a point so important as Parkersburg will be sought by every one of them that shall come within striking distance. Our road once brought to the Ohio at Parkersburg, it cannot but follow that the facilities which will then and thus be offered for a direct and rapid access to the Atlantic will be eagerly availed of by tributaries enough in the West to constitute the great Baltimore Central route the main thoroughfare of trade and travel for the whole region to be commanded by the line from St. Louis to the eastern seaboard.—*Baltimore American.*

Ohio.

Cincinnati, Wilmington and Zanesville Railroad.—The Cincinnati Weekly Gazette says:—“The surveyors have been for some days past on the line from this city to Wilmington, by way of Lebanon. We entertain no doubt whatever that the engineers can find a short and easy route into the city by way of Lebanon, if not the shortest and easiest route. The Star says, that from Lebanon this way to Mason, there can be no better track for a road—not over eighteen feet grade, and the whole line to the city practicable. The engineer is now exploring the ground from Wilmington, to run near

Harveysburgh, and down Carson’s creek to the Little Miami. Several routes by Lebanon are spoken of as clearly practicable. The shortest route, will we think, pass near Lockland.”

Kentucky.

Lexington and Danville Railroad.—We learn that the amount of stock necessary to organize the Lexington and Danville railroad company, has been subscribed, and the road will soon be in progress of construction.

Harrodsburg Branch Railroad.—A meeting of delegates from the counties of Shelby, Franklin, Anderson and Mercer, was recently held at Harrodsburg, to take into consideration the subject of building a railroad from that place, to intersect with the Louisville and Frankfort railroad at some suitable point, to be determined by the directors of the Louisville and Frankfort company. Captain Samuel Daviess presided as chairman of the meeting, which was addressed by several of the delegates from Shelby and Franklin, J. M. Bullock, Esq., of Shelby, and Hon. C. S. Morehead, of Franklin, being the principal speakers. Mr. Bullock advocated in a very able manner the advantages of having the road to leave Lawrenceburg, near that place and strike the Shelby line about five miles south of Hardinsville, and thence on through Shelbyville, to intersect the present road about twelve miles from Louisville; and asserted that Shelby would build thirty miles of the road, or all within the limits of that county. Mr. Morehead and other Frankfort delegates, on the contrary, undertook to demonstrate that Frankfort was the best point, and that while Frankfort was the only point which could probably be reached at an early day with the means which it was likely could be raised, the Shelby route would be to a great extent a rival road to the present Louisville road. But the Frankfort delegates took the ground distinctly, that they intended to make no opposition to any road; that if Danville wished to construct a road to Lexington, it was their right to do so; and that if Shelby wished to construct a road from Anderson to near Louisville, they had a right to do so. There was no diversity of opinion about the advantages of constructing the road, and it is believed that as soon as the location is made by the present company, those counties will go to work at once to raise all the means required of them.

In the absence of estimates, and the Louisville and Frankfort company not being represented as expected, no permanent action took place, and another meeting was appointed to be held at Lawrenceburg on the 3d of October, when it is expected that everything will have been done to enable the parties interested to go to work at once in providing the requisite means.

New York.

Syracuse and Binghamton Railroad.—Judge Stevens, the president of the company, made our village a short visit yesterday on his way to Great Bend to make some examinations in reference to the Legget’s Gap road, the supply of coal, &c. He was accompanied by Jas. Hall, Esq., who has been appointed engineer of the road. Mr. Hall has heretofore been engaged on the eastern roads, and is now the Chief Engineer of the straight road from Syracuse to Rochester, which is now in a state of forwardness, and of which he has principal charge as engineer and commissioner. He has had much experience as an engineer, and his appearance sustains his reputation as a practical, efficient, common-sense man. We think the directors have been fortunate in the selection of Mr. Hall. We are happy to learn that the survey will be commenced on the route north of the summit next week.—*Binghamton Dem.*

Ohio.

Central Ohio Railroad.—In our last we announced to our readers the arrival of one of the locomotives purchased for the use of the Central Ohio railroad. This has been landed in West Zanesville, and in company with its "tender," has taken its station on the track. At the same time that this engine came to hand the first lot of rail for the road also arrived; several boat loads of the rail are now on the way from Cleveland. There is also in that city a considerable quantity awaiting transportation, and still another lot on the way from New York to Cleveland, while there are several ship loads daily expected to arrive in New York from Wales; so that we now hope to be continually and regularly receiving the rail as fast as it may be needed.

It is intended to commence laying the track at West Zanesville and at the Black Hand about the same time, and the work will be pushed forward from both points as rapidly as possible until it shall be completed.

The directors are expecting three more locomotives as fast as they may be needed, to arrive from the East. We believe that the Messrs. Blandy also have one nearly completed. Messrs. Douglass, Smith & Co. have also 21 freight cars nearly completed, and about 41 more in course of construction, for the use of our road.

In addition to this the directors have purchased and paid for two beautifully furnished passenger cars, manufactured at Dayton, and which are to be delivered at Newark whenever demanded.

So, it will be seen, that machinery is already provided to put the road in operation as fast as the track can be completed.—*Zanesville Courier.*

Baltimore and Ohio Railroad.

Progress of the Road West of Cumberland.—The rails have reached the end of the 45th section, and have passed the heavy grade on Savage and Crabtree, and the summit at the head of the latter. The weather in that region, the chief engineer states, had not been favorable or more track would have been laid. After a slight detention at the Gap, in the embankment near the summit, the rails will move forward more rapidly, and it is expected they will reach the Oakland station in the glades, by the 20th or 25th current, and in Cranberry swamp by the 15th of next month, should the weather prove favorable. The 15 miles of high grades have now been worked, and are daily worked with ease and safety at speeds both up and down, of 20 miles an hour, by the engines and trains employed upon them.

Reduction of Fare.—At the stated meeting of the board of directors of the Baltimore and Ohio railroad company, this day, we learn that a reduction was made in the passenger fare from Baltimore to Cumberland, and intermediate points. The through fare to Cumberland will hereafter be charged at \$5, instead of \$7 as heretofore. The new tariff to commence at the commencement of the fiscal year, on the 1st of October.

We also learn that the company has reduced its rate on the transportation of coal 15 cents, equivalent with existing rates, to \$2 per ton to private wharf owners.—*Baltimore Patriot.*

Iron for the Manchester Road.

We learn from the Wilmington Herald that a contract for the purchase of the whole of the iron for the Wilmington and Manchester railroad was recently effected in New York by the agents of the company. The company's bonds are taken in payment at 90 cents, the cost of the iron is \$41.50 cents per ton, and it is to be delivered at Wilmington and Charleston at that price, free of duty and all expenses. The company, of course, pay the duties, freight, &c., in the first place, but the amount is afterwards to be deducted.

This, the Herald says, is a good contract, and it is so considered by those interested in the welfare of the road, or concerned in its management. It is another evidence of the advancing progress of the work which is steadily pushed forward, and destined when completed, to add largely to the commercial prosperity of this place.

New York.

Northern Railroad.—In answer to the numerous inquiries made in regard to the Northern road, which is to connect this city with Vermont, for the purpose of securing a portion of the Northern trade, we would state that an entire new line has recently been surveyed between this city and Cohoes, and that the report of the engineer, together with a map of the survey and the necessary papers, is now in possession of the directors. It is confidentially asserted that the last surveyed route will be selected, and that in the course of this week the entire line to Cohoes will be put under contract. This line does away with a branch road to Cohoes, and it is considered, by those conversant with it, to be by far the best and most available route, as by the addition of some twenty miles of rails a straight road can be built to Saratoga, which would command the bulk of the pleasure travel, and pay a handsome interest on the investment.—*Albany Journal.*

Canandaigua and Niagara Railroad.—At a meeting of the directors of the Canandaigua and Niagara railroad, last week, the following resolution was adopted:—

Resolved, That this company will go on and construct as speedily as possible a railroad of the gauge of six feet in width, from Canandaigua to Niagara Falls, and that measures be taken immediately to fill up the balance of the subscription for the capital stock, so that the work may be put under contract by the first of October next.

Canandaigua and Jefferson Railroad.—The Canandaigua and Jefferson railway is completed, and will be run by the Erie railroad company. It is stated by the Ontario Repository, that the distance from Canandaigua to New York, will be accomplished by this route in 14 hours. From Canandaigua to Jefferson, the road traverses a beautiful country—being the most fertile sections of the rich counties of Ontario and Yates. The distance from Canandaigua to New York by this route, is 356 miles. By the way of Albany, it is 364 miles. There is little saving in distance, therefore, on the new route.

Railway to St. Louis and to Indianapolis.

A public meeting was lately held at Brownstown, Jackson county, Indiana. Much spirit was manifested favorable to the railway to St. Louis. Resolutions were adopted with great unanimity, to reduce the claims for rights of way, and pledging the country and individuals for an amount of stock sufficient to place the superstructure on the road, provided it shall be located with a view to promote the settled interests of the county. This is in addition to the stock formerly taken in that county. They also recommend to the people of Jennings and other counties along the line, to take immediate and efficient steps to advance this great railway enterprise.

The Indianapolis Sentinel of the 5th instant, earnestly advocates the direct railway to Cincinnati, which it declares 109 miles long—a three hours trip. The St. Louis line from Cincinnati, about to be put under contract, provides for the "direct line" as far as Lawrenceburgh. From Lawrenceburgh to Shelbyville, 63 miles, the road is under contract, and the track will be laid on it this autumn, from Lawrenceburgh out 20 miles, and the rest of the way to Shelbyville will be ready for the iron by the 1st of January, 1853.

The Sentinel says "our citizens have taken hold of this matter in the right way," by taking \$60,000 of the stock, which under proper encouragement at the other end, can be raised to \$100,000. They look to Cincinnati to double this sum, which done, the thing is settled and the road will soon be in flourishing operation.

"No sane man can question the productiveness" of a railway connecting Cincinnati directly with Indianapolis, says the Sentinel. The company have offered to adopt the Ohio gauge, (in expectation of encouragement in Cincinnati), so that there need be no transshipment at Lawrenceburgh. Will Cincinnati fail on her part?

Why friends, Cincinnati, by your own showing, is about to make the road to Lawrenceburgh, one

fourth the distance, and at probably half the expense of the whole line. Is that nothing? Cincinnati is doing all she can, and should it be necessary, will still further aid the line spoken of, but let the people along the line take hold with a will, and the work will be done beyond peradventure.—*Cincinnati Weekly Gazette.*

Maine.

Kennebec and Portland Railroad.—The work on the Kennebec and Portland railroad is apparently progressing towards its completion, in a very satisfactory manner. The hands which have been scattered along the road are being concentrated at those points where the most work remains to be done. Much the greater portion of the grading on the unfinished part of the road is already completed. The rails have been laid nearly or quite up to the south line of Gardiner. The foundations for the depots in this city are now being prepared. The freight depot and machine shops at the foot of Court street, are to be built of brick, and the work of erecting the walls was commenced on Monday last, under the superintendence of Mr. Alfred Bicknell.

The passenger depot on Commercial street, is to be built of wood, about two hundred and fifty feet long and sixty-five feet wide, the upper end being within seventy-five feet of Bridge street. The work, we understand, is not to be let out on contract, but the company will employ mechanics to do the work by the day.

It is confidently expected by the friends of the road that the cars will run to this place early in November.—*Augusta Farmer.*

Tennessee.

Nashville and Chattanooga Railroad.—We learn that the work on the bridge across the river, being built under the supervision of Col. Stevens, is progressing very well. It is a very heavy job, but we are convinced that if energy, supported by practical knowledge, will conquer, the company may rest contented that Col. Stevens will get his work done.

Messrs. Murdoch and Townsend, who have a very heavy contract on the road between Chattanooga and the river, are devoting their whole energies, time, talents, capital and ingenuity, in pushing forward the work. They will succeed, without some misfortune, in fulfilling their contract. The work around the point of the Look Out mountain is further advanced than the most sanguine friends of the enterprise anticipated, considering the difficulties to be encountered. On the 25th, Mr. Murdoch rode round on the track on horseback, and on the 26th, the same feat was performed by engineers J. B. Whiteside and H. L. Brantley. This argues well for the success of the work. To the enterprising contractors, the engineers, boss workmen and all concerned, much credit is due. The "Point" was a serious obstruction; now it is passed, and the cavalier and pedestrian can pass in safety, and soon the steam engine will wend its way beneath the mighty cliffs, and above the dark waters of the beautiful Tennessee.—*Chattanooga Gazette.*

Indiana.

Three hundred tons T rail iron arrived last night on two flat boats from Cincinnati, for the extension of the Bellefontaine road to Muncietown. The iron came through the Welland Canal, the Lake and the Sandusky railroad to Cincinnati.—*Madison Courier.*

Canada.

Bytown and Prescott Railroad.—The Directors of the Bytown and Prescott railway company held a meeting at Prescott on the 2nd inst., at which the necessary steps were taken for proceeding with the work upon the line of the railroad forthwith. The tender of Messrs. French & Co., for the clearing, close-cutting and grubbing of the woodland upon the whole line was accepted, and their Chief Engineer, has already advertised for tender for certain portions of the grading.

It is the intention of the directors to push the work as vigorously as possible this fall, in order to have the advantage of the best part of the season for such descriptidns of operations. The heavy cuttings will be opened as soon as practicable, and kept in progress during the winter; and they can by this means be sufficiently advanced next season

to allow of their being completed as early as the other portions of the line. Ground will be broken at Bytown on the second day of next month, though the clearing, &c., of the wood-land will be set about immediately.—*Ottawa Citizen.*

Mississippi.

Southern Railroad.—We understand from one of the commissioners of the Southern railroad that the tressel work at the Pearl River bridge, is now being repaired in a most substantial manner. It was thought that this part of the road was in rather bad order, and hence the improvement. An experienced and skilful mechanic has charge of the work, and we are assured that the tressel work of the Pearl River bridge, will hereafter be perfectly secure.

While speaking of our part of the road, it is our duty to inform the public that the depot at this place has, of late, been much enlarged, by the addition of a large and commodious warehouse, some 80 or 90 feet in length, and 40 or 50 feet in width. Much credit is due the commissioners of this end of the road for their untiring industry, and concern, for the comfort and convenience of the public.—*Brandon Republican.*

Railroad Meeting at Greenupburg, Ky.

On Monday, the 1st inst., there was a meeting at Greenupburg, of the citizens of Greenup county, in favor of a railroad from Maysville to the mouth of the Big Sandy. The Ironton Register says that there was not much enthusiasm manifested, but intimates that the people of that county are not so much opposed to the road, as they are to subscribing anything for it. An address was delivered by Thomas B. Stevenson, Esq. editor of the Maysville Eagle, and there were about \$200 raised for the purpose of defraying the expense of preliminary surveys.

New York and Erie Railroad.

The Erie railroad, which has a regular business office in Philadelphia, is attracting transportation from that city. The New York Express says:

"Many merchants in Philadelphia, in conformity with their circular, are sending goods sold to western merchants via the Erie railroad, the Philadelphia merchants paying the freight from their city to New York. The more rapid transit by the Erie road is the inducement to send merchandise in this direction."

Rutland and Washington Railroad.

The track of this road is already laid with iron to Granville, N. Y., a distance of 20 miles from Rutland, and the entire line from Rutland to Eagle Bridge, 57 miles, (where it joins the Troy and Boston road), will be ready for running in the month of October. By the 1st of December, the Troy and Boston road will be completed to Eagle Bridge, thus giving us a continuous and direct line of railway, by way of the Hudson River road, from Burlington to New York, a distance something less than 300 miles.

Virginia Locomotive and Car Works.

Wolfe Street and River Potomac, Alexandria, Va.
SMITH & PERKINS, Proprietors.

MANUFACTURE

Locomotive Engines and Tenders.
Marine and Stationary Engines and Boilers.
Chilled Car Wheels and Axles.
Patent Chilled and Wrought Slip-tire.
Machinery and Castings generally.

The undersigned having erected very extensive shops, and procured the most modern machinery and tools, are prepared to execute orders for Locomotive Engines, Cars, and Machinery of all kinds, with despatch, and on the most favorable terms.

R. C. SMITH,

Late of the Alexandria Iron Works.

THATCHER PERKINS,

Late Master of Machinery on the Balt. & O. R.R.
July 22, 1851.

Railroad Iron.

THE undersigned, Agents for British Manufacturers, continue to sell Railroad Iron of the best quality, and of any weight or pattern required; deliverable at any part of the United States or Canada.

They have now on hand, ready for delivery at New York:

2,000 tons of an approved pattern, weighing about 60 lbs. to the yard.

WM. F. WELD & CO.,
42 Central Wharf, Boston.

Septimus Norris,

Civil and Mechanical Engineer, Philadelphia.

To Railroad Companies.

THE undersigned has discovered and patented an imperishable, cheap, and sufficiently elastic substance, to be introduced between the sill and rail, so that the stone sill can be used in place of the wooden sill: entirely overcoming that rigidity where the rail is laid directly on stone. Address

J. B. GRAY, Philadelphia.

July 10, 1851.

4m

To Contractors.

York and Cumberland Railroad, Maine.

Portland, Sept. 12th, 1851.

PROPOSALS will be received at the office of the York & Cumberland Railroad Company in this city, from the 10th to the 15th day of October next, for the grading, masonry and bridging of the York and Cumberland Railroad from Gorham Station to Great Falls, a distance of about 38 miles. Proposals will also be received at the same time and place, for building the entire line of said road, including the superstructure, or any one or more divisions thereof.

Plans, profiles and specifications will be exhibited, and all requisite information given at the office of the company, in Portland, on and after the 10th of October next.

Trains have run from Portland to Gorham during the past season; work has also been done to a considerable extent at the western end of the line, between Great Falls and Springvale.

The York and Cumberland Railroad, when completed will be the great interior line—in connection with the Boston and Maine Railroad—between Portland and Boston, and will command the principal travel between the two cities.

By order of the Board of Directors,

JOHN A. POOR, President,

JOHN F. ANDERSON,

September 15.

Chief Engineer.

Railroad Paint.

FOR depot buildings, bridges, burthen cars, wheels and axles, pipes, steam joints, fences, and every description of work requiring protection from the action of the elements. Price per barrel of 300 pounds, nine dollars.

Orders addressed to J. M. HALL, 36 South street, New York, will receive prompt attention.

To Contractors.

Cincinnati and St. Louis Railroad.

SEALED proposals will be received at the Office of the Company till Wednesday, the 1st day of October next, for grubbing, grading and bridging forty-five miles of the Ohio and Mississippi railroad, from Mill Creek, in Cincinnati, to a point twenty miles west of the city of Aurora, Ind.

Plans, specifications, &c., may be examined by Contractors, at the Office of the Company, in Cincinnati, from the 20th of September, to the day of letting.

By order of the Board,

ABNER T. ELLIS, Pres't.

Cincinnati, August 16th, 1851.

Railroad Iron.

THE Undersigned offer for sale 2,000 tons of Railroad Iron, to arrive at New York in the month of September next. It is of a most approved pattern and quality, and weighs about fifty-five pounds to the yard.

CHOUTEAU, MERLE & SANDFORD.

No. 51, New Street.

New York, August 9,

To Contractors.

A DIVISION of about 30 miles of the grading, together with the mechanical works of the South Side Railroad, commencing near Farmville, and extending westward, will be let on the 15th of October next, at Farmville.

C. O. SANFORD, Chief Engineer.

Petersburg, September 4th, 1851.



Blake's Patent FIRE-PROOF PAINT.

This paint, in a few months after applied, turns to slate or stone, forming a complete enamel or coat of mail over whatever applied, protecting it from the action of fire, water or weather. It has now been tried over seven years, and where first applied is now like a stone.

LOOK OUT FOR FORGED BRANDS AND WORTHLESS COUNTERFEITS, as this paint has gained such universal credit throughout the country, that many persons have been getting up all kinds of worthless counterfeit stuff, and pushing it into the market upon the credit of the genuine, but most of it has proved itself so entirely worthless, that it is impossible to sell. Some of them have commenced forging my brands, and putting it upon the barrels—the forgery can be detected from the fact that on the genuine the words "Blake's Patent Fire Proof" are put on in a circular form, but on the spurious it is straight. I have now three suits in the United States Court against those who have been infringing my patent by selling "fire proof paint" not of my manufacture. I would, therefore, caution all to be very particular, and see that they get the genuine article, which can at all times be had of the Patentee, at 84 Pearl street, New York.

WM BLAKE.

September 12th.

Wanted,

BY the Montreal Mining Company, a Manager for their Establishment at the Bruce Mines, Lake Huron.

Applications stating terms, and enclosing certificates of character and ability, will be received by the undersigned until the 1st October next.

By order.

H. D. COCKBURN, Secretary.

Montreal, August 27, 1851.

To Contractors.

THE SUNBURY AND ERIE RAILROAD COMPANY invite proposals for grading and bridging the line of the road, for a double track, from the City of Erie to Williamsport, in Lycoming county, in a substantial and workmanlike manner, complete in every respect for the superstructure.

Proposals should be addressed to D. L. MILLER, Jr., President, Philadelphia, on or before the 20th of Ninth month (September) 1851. Contractors will state what proportion of the Stock of the Company, if any, they will take at par in payment.

It is believed that the superiority of the harbor of Erie, the favorable position of the route, and the shortness of the distance secured by this, compared with any other railroad from the Lakes to the seaboard, will render this road as profitable, and its stock as good an investment, as that of any ever constructed in the United States.

A copy of EDWARD MILLER's Second Report will be forwarded to those to whom this Circular may be addressed.

A MASS CONVENTION of the friends of this great project will be held in the City of Philadelphia on the 25th of Ninth month (September), at which all interested are invited to attend.

3:36

Bridges & Brother,
DEALERS IN
RAILROAD AND CAR FINDINGS,
64 Courtlandt street, New York.

Having established a general Depot for the sale of articles used in the construction of Railroads, Locomotive Engines and Railroad Cars, we would invite your attention to our establishment. We have already in store a good assortment of CAR FINDINGS and other articles used in the trade, and feel justified in saying, that should you desire anything in our line, we can supply on terms perfectly satisfactory, and in the event of your desiring to order, you may feel assured that your terms will be as good as though you were here to make your own purchases.

Among our goods may be found Railroad Car Wheels, Axles, Jaws and Boxes, Nuts and Washers, Bolts, Brass Seat Hooks and Rivets, Window and Blind Springs, Lifters and Catchers, Door Locks, Knobs and Butts, Ventilators and Rings, Car Lamps, Coach and Wood Screws, Jack and Bed Screws and Babbitt's Metal; also Plushes, Damask, Enameled Head Linings, Cotton Duck for Top Covering in width sufficient without seams, Curled Hair and all other articles appertaining to cars.

Also a new and valuable CAR DOOR LOCK, well adapted to the Sliding Door. This is decidedly the best yet introduced.

LOCOMOTIVE ENGINE LANTERNS, the best article made in the country. Whistles, Gauge and Oil Cocks, Hemp Packing, American, Russian and Italian. We are also agents for Lightner's Patent Journal Box for Car Axles, that invaluable invention, for the economical use and preservation of Car Journals.

Coach VARNISH and Japan of the best quality. We would also offer our services for the purchase as well as for the sale of goods on commission.—Both members of our firm have had the experience of many years in the manufacture of Railroad Cars, and our Senior was a member of the well known house of DAVENPORT & BRIDGES, Car Manufacturers, Cambridgeport, Mass. With our knowledge of matters pertaining to Railroads, we feel quite confident in giving satisfaction to both buyer and seller, and hope that through assiduity and attention to any business entrusted to our care we shall merit a continuance of confidence and patronage.

BRIDGES & BROTHER.

July 22, 1851.

Lightner's Patent Axle Boxes.

THE Undersigned are Agents for, and offer for sale, *Lightner's Patent Axle Boxes*, for Railroad Cars and Tenders, which have, by thorough experience, been demonstrated to be one of the most valuable improvements ever introduced in Locomotion. The saving effected in oil alone, will in a few months pay the first cost of these boxes, independent of other advantages. They are now in use upon the following, among other roads, viz:

Boston and Worcester, Boston and Providence, Boston and Fitchburgh, Nashua and Lowell, Providence and Worcester, Northern, N.H., Cheshire, Manchester and Lawrence, Concord, N.H., Concord and Claremont, Ogdensburg, (Northern, N.Y.) Stonington, New London Willimantic and Palmer, New Jersey Central, New Hampshire Central, Worcester and Nashua, Fitchburgh and Worcester, Connecticut and Passumpsic, Lowell and Lawrence, Salem and Lowell, Wilton Branch, Newburyport.

Below will be found the certificates of a number of gentlemen, whose opinions will be good authority in every part of the country.

Office Boston and Prov. R. R., }
Boston, Dec. 28, 1849. }

MR. JOHN LIGHTNER,

Sir,—It affords me pleasure to say, that after two years' trial of your boxes, I am fully and entirely satisfied of their superiority over any other pattern we have used. This superiority consists in economy of oil and freedom from "heating." I have tried every pattern of box in use, of any note, and do not hesitate to say, that you have devised one which in every respect combines greater advantages than any other within my knowledge; these advantages are so manifest, that I am fitting up all

our cars with your boxes, as fast as practicable.

Annexed, is a statement of an experiment with your boxes, the result of which may be of use to your interests.

Ten passenger cars, running 72 wheels, fitted up with Lightner's boxes used 41½ pints of Patent Oil, at 50 cts. per gallon, ran 43,099 miles, equal to 5.18 pints per wheel for 43,099 miles. Speed, 30 to 40 miles per hour.

Very respectfully yours,

W. RAYMOND LEE, Supt.

I have examined the above statement of Mr. Lee, and fully concur with him in his opinion of the superiority of Lightner's box.

GEORGE S. GRIGGS,
Supt. Machine Shop B. & P. R. R.

Boston, July 26, 1849.

This is to certify that J. Lightner's axle boxes for railroad cars and locomotive tenders, have been in use on the Boston and Worcester railroad one year, and I unhesitatingly pronounce it, in my opinion, the best and most economical one in use, requiring less oil, of easy application, not susceptible of derangement, as in most kinds in use. When requiring repairs or renewal, the same may be done in one-fourth of the time usually occupied for that purpose. The box requires oiling not oftener than once a month—is kept quite free from dust, and consequently wears much longer than those generally in use.

D. N. PICKERING,
Supt. Motive Power, B. & W. R. R.

Office of Boston Locomotive Works, }
December 12th, 1849. }

The Boston Locomotive Company have been using J. Lightner's patent axle boxes under the tenders of their engines for several months, and find them more highly spoken of by the railroad companies that have used them in regard to economy in the use of oil, their durability and their ease of adjustment, than any other boxes which they have used. We therefore do not hesitate to recommend them to all railroad companies.

DANIEL F. CHILD,
Treas. Boston Locomotive Works.

Taunton Locomotive Works, }
Taunton, July 7, 1849. }

MR. H. F. ALEXANDER,

Dear Sir,—Your favor of yesterday came to hand in which you ask what success we have met with, in using Mr. Lightner's patent box for cars, engines, &c.

We have put it in use on the Boston and Providence railroad, New Bedford and Taunton Branch railroad, Central railroad, N. J., Norfolk County, Rutland and Burlington, and as yet we have not had one complaint from them; and from what we have used of it, and witnessed, we do not hesitate to say that it is superior to anything in use for that purpose. It is simple in its construction, and easy of access, and the reservoir is held close to the shaft, and the oil and journal is perfectly secure from dust; they will run from four to six weeks without replenishing the oil. The brass in the box is changed very much easier than by any other plan that we have seen.

Very resp. yours,

W. W. FAIRBANKS, Agent.

Office Providence & Worcester R. R. Co., }
Providence, Dec. 17th, 1850. }

H. F. ALEXANDER, Esq.,

Sir,—The "Lightner patent boxes" for cars and locomotives have been in use under a portion of the passenger cars and engines of this company for upwards of two years, and have given very great satisfaction.

Though combining many excellent qualities, their great superiority consists in the economy of oil.

The result of experiments upon this road shows the consumption of oil by the use of this box, to be not more than one sixth part the quantity consumed by the use of the common box.

With the common box, eight passenger cars, 64 wheels, running 90 miles per day, consumed in 12 months 520 gallons of oil, being an average of 8½ gallon per wheel per annum.

With the Lightner box the same cars running the same number of miles per day, during the same space of time consumed 73½ gallons of oil, being an average of 1½ gallon per wheel per annum.

So manifest are its advantages over any other box used by this company, it is intended to place it under all our cars as soon as practicable.

Besides the saving of oil, as they afford complete security from dust, we think them more durable than any other box in use.

Another advantage resulting from the use of this box is, cars run more easier than with the common box. The saving in fuel which it would effect, would of itself, we think be a sufficient inducement to use this box in preference to any other known to us.

Very respectfully,

ISAAC H. SOUTHWICK, Supt.

JOHN B. WINSLOW,

Supt. Machine Shop, P. & W. R. R.

Cambridgeport, April 5th, 1851.

H. F. ALEXANDER, Esq.

Sir,—This may certify that I have been engaged in the manufacture of railway cars since 1834, and have built for the different railroad companies cars of all descriptions to the amount of three millions of dollars, and have used on the above cars all kinds of journal boxes, and find that none give better satisfaction than the "Lightner patent box," both on account of the saving of oil and the arrangement for taking out and re-placing the composition by means of the sliding key, and other conveniences which no other box possesses.

Yours respectfully,

CHARLES DAVENPORT.

Worcester, March 17th, 1851.

H. F. ALEXANDER, Esq.

Dear Sir,—This is to certify that I have been for some years past engaged in building cars, and that I have tried most, if not all of the patent boxes, and have found Lightner's patent superior to all others as far as the saving of oil is concerned, also the ease with which they are fitted and exchanged in case they get out of order.

For the last three years, I have put them under all of the cars I have built, and in every instance they have given the most entire satisfaction.

Yours truly,

OSGOOD BRADLEY.

Office Union Works, So. Boston, }
May 23d, 1851. }

This certifies that I have applied Mr. J. Lightner's patent axle boxes to my locomotives and tenders for the past two years. I consider them superior to all others,—economical in their use, and possessing many important advantages not found in any other boxes.

SETH WILMARTH.

Office 15, R. R. Exchange, Boston, }
June 1, 1851. }

This is to certify, that we have known the success of Lightner's patent journal boxes upon various roads in New England the past three years, and have been led to examine their peculiar construction.—We are well satisfied of their merits, and have adopted them upon our small gravel cars, and take pleasure, as we ever have done, in recommending their use upon all roads where we are employed in the construction.

GILMORE & CARPENTER,

Contractors.

Amoskeag Manufacturing Co. Machine Shop, }
Manchester, May 31, 1851. }

H. F. ALEXANDER, Esq.

Dear Sir,—We are using the Lightner box on all the engines and tenders we build, and we are satisfied that it is the best box in use, and recommend the same to all those who purchase engines at our works.

Yours respectfully,

O. W. BAYLEY, Agt.

This is to certify that the Fitchburg railroad company having become satisfied of the superiority of J. Lightner's patent Axle Boxes for Railway Cars and Locomotive Tenders adopted the same.

and are bringing them into general use upon their road.

One year's experience with the above improvement, has fully convinced me that there has never been anything offered to the public for that purpose which possess such intrinsic value; in fact, this is an improvement which seems to overcome all the difficulties found in all the various kinds now in use. It possesses very many advantages over all others: Some of which are [first] the first cost is much less than that of most boxes in use. [Secondly] 75 per cent is saved in oil; one gill applied to each Journal once a month, or one quart to an eight wheel car, is all these boxes require per month [Thirdly] no dust can gain access to the Journal, which is constantly lubricated with clean oil; hence the saving in repairs of Journals and composition bearings, is a matter of importance. [Fourthly,] its construction is truly simple—not complicated, having nothing liable to become loose by constant and severe service. [Fifthly] for convenience there is nothing which approaches this improvement.—The composition bearings may be removed from the Journals of an eight wheel car, by one man, and returned, or duplicates, in twenty minutes, while under the car: the same would require two men, at least half a day with other boxes in use.—The trucks and wheels using these boxes, are free from oil and dirt, usually seen upon all railroad cars, at great expense to the corporation.

NATH'L JACKSON.

Supt. Car Building and Repairs, F.R.R. Co.

Boston, March 9, 1849.

I hereby certify, that I have examined a box for Car Journals, invented by Mr. Lightner of Roxbury, Mass, and I have thought so well of it that I have adopted it on our railroad, I have known of its success on other roads.

S. M. FELTON,
Supt. F. R. R.

Office of the Central R. R., N. J., }
Elizabethtown, May 1849. }

H. F. ALEXANDER, Esq.,

Dear Sir:—Your favor, [wishing to be informed how we liked Lightner's patent axle boxes for R.R. Journals,] has been duly received; in answer we would say, we have used the boxes on Locomotive tenders one year, more or less, and on our cars some six months. I consider them the best boxes in every respect, I have ever used, or even seen used on any other roads—for safety, durability and the economy pertaining to all the details connected with the boxes and Journals of R. R. Car wheels; and we shall adopt them upon this road.

Yours Respectfully,

JOHN O. STEARNS.
Supt. Central Railroad Co., N. J.

Manchester, N. H., Nov. }
1st, 1850. }

H. F. Alexander, Sir,

I have used "Lightner's Boxes" under all the Cars of the Manchester and Lawrence railroad, and feel no hesitation in saying that I think them to be the best boxes now in use.

Yours, &c.,

THEODORE ATKINSON, Agent.

Cheshire R. R. Office, Keene, }
March 5th, 1851. }

Mr. H. F. Alexander,

Sir,—Lightner's Patent Boxes have been used on the Cheshire R. R. about a year, and have given the highest degree of satisfaction.

All the Passenger Cars now in use, and a considerable number of Merchandize Cars are furnished with them, and they will take the place of the Common Boxes on all the cars as fast as circumstances will permit.

Very Resp't.

L. TILTON,
Supt. Cheshire R. R.

Boston and Worcester Railroad, }
Boston, April 1st, 1851. }

H. F. Alexander, Esq.,

Dear Sir,—Lightner's Patent oil saving box for railroad cars, has been adopted by this corporation; we are taking out the common and substituting the

Lightner's at the rate of fifty boxes per month; it will soon take the place of all others, as it is decidedly preferable to any heretofore used by this corporation.

G. TWITCHELL, Supt.

Statement of amount of oil used on 32 8-wheel freight cars, on the Boston and Providence Railroad (with Lightner's Boxes) from March 10, 1849, to February 27, 1851, and upon 12 8-wheeled passenger cars from September 8, 1849, to February 27, 1851.

FREIGHT CARS.

Amount Oil.	No. months.	Amount Oil.	No. months.
1.—21 pts.	10	17.—23½ pts.	14
2.—19 "	6	18.—23½ "	11
3.—25 "	13	19.—36 "	21
4.—18 "	7	20.—22 "	10
5.—22 "	12	21.—38½ "	24
6.—24 "	13	22.—29 "	23
7.—20 "	11	23.—35½ "	23
8.—21 "	11	24.—37½ "	23
9.—23½ "	10	25.—51 "	23
10.—21 "	9	26.—31½ "	24
11.—20 "	9	27.—28½ "	23
12.—21½ "	11	28.—36 "	23
13.—19 "	8	29.—50½ "	24
14.—25½ "	17	30.—50 "	23
15.—20½ "	10	31.—41 "	23
16.—31 "	18	32.—39½ "	23

Total, 925½ pts. 510

PASSENGER CARS.

Amount Oil.	No. months.	Amount Oil.	No. months.
1.—19½ pts.	18	7.—30 pts.	18
2.—25½ "	18	8.—25½ "	18
3.—33½ "	16	9.—29 "	18
4.—19 "	15	10.—46½ "	17
5.—15 "	15	11.—9 "	9
6.—22 "	18	12.—65½ "	17

Total, 340 pts. 197

Averaging 1 4-5 pints of oil for freight, and 1 7-10 for passenger cars per month only!

All orders and enquiries promptly attended to.

BRIDGES & BROTHER,

No. 64 Courtlandt st., New York.

July 25, 1851.

To Boiler Makers, Engineers, etc., etc.

PATENT LAP-WELDED IRON TUBES,
Manufactured by the
BIRMINGHAM PATENT IRON TUBE CO.

UNDER

PROSSER'S PATENT,
from one and a quarter to eight inches in diameter.

These tubes are well known for their superiority over all other descriptions for Locomotive, Marine and other Steam Engine purposes, for which they are used very extensively in Great Britain and on the Continent of Europe.

For sale in quantities to suit purchasers, by

WILLIAM BIRD & CO.,
44 Wall st., New York.

July 26, 1851.

To Chief Engineers, Directors of Railroads, Canals, etc.

A Civil Engineer and Surveyor, who has been professionally engaged under the British Government, East India Company, etc., is desirous of obtaining employment as an Assistant. No objection to the South or West. Address for one month to C. E. & S., American Railroad Journal office. August 16, 1851.

To Engineers.

A NEW WORK on the Marine Boilers of the United States, prepared from authentic drawings, and illustrated by 70 engravings, among which are those of the fastest and best steamers in the country, has just been published by B. H. Bartol, Engineer, and is for sale at the store of

D. APPLETON & CO.,
Broadway.

September 1, 1851.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WRIGHTMAN, manufacturing Chemists, Philadelphia.
Jan. 20, 1849.

European and North American Railway.

THE undersigned, the three persons first named in the first section of an act passed by the Legislature of Maine, and approved the twentieth day of August last past, entitled "An Act to incorporate the European and North American Railway Company," and being specially authorised therefor in and by said act, hereby give public notice that, for the purpose of receiving subscriptions to the stock of said company, as established by the act aforesaid, according to the provisions thereof, not exceeding forty thousand shares, books of subscription will be opened under the direction of the undersigned, according to the regulations prescribed, at the time and places following, viz:—On Wednesday, the Twentieth day of August next, At Calais, Maine, with Noah Smith, Jr., Esq.

Eastport, do. " Col. Bion Bradbury.
Machias, do. " Walker & O'Brien,
Ellsworth, do. " Seth Tisdale, Esq.
Oldtown, do. " Geo. P. Sewall, Esq.
Bangor, do. " Geo. W. Pickering, Esq.
Orono, do. " Hon. Israel Washburn, Jr.
Waterville, do. " Hon. Timothy Boutelle.
Brunswick, do. " Prof. William Smyth.
Augusta, do. " B. A. G. Fuller, Esq.
Belfast, do. " John Y. McClintock, Esq.
Portland, do. " John B. Brown, Esq.
Portsmouth, N.H. " Hon. I. Goodwin.
Salem, Mass. " Stephen A. Chase, Esq.
Boston, do. " Francis Skinner & Co.
Lowell, do. " John Wright, Esq.
Worcester, do. " Charles Washburn, Esq.
Providence, R.I., " Billings Brastow, Esq.
Hartford, Conn., " Hon. C. F. Pond.
New Haven, do. " Allen Prescott, Esq.
New York, N.Y., " R. & G. L. Schuyler, No 2 Hanover street.

Albany, do. " John V. L. Pruyn, Esq.
Troy, do. " Hon. John D. Willard.
Philadelphia, Pa. " Hon. Wm. C. Patterson.
Montreal, Canada, " Hon. John Young.
Quebec, do. " J. B. Forsyth, Esq.

Said books will remain open for ten successive days at the places and with the persons aforesaid. Dated at Portland, this sixteenth day of June, A. D. 1851.

ELIJAH L. HAMLIN,
ANSON G. CHANDLER,
JOHN A. POOR.

Trautwine on R. R. Curves.

By JOHN C. TRAUTWINE, Civil Engineer,
Philadelphia, Pa.

IN press, and will be published in a few days; accompanied by a Table of Natural Sines and Tangents to single minutes, by means of which all the necessary calculations may be performed in the field.

This little volume is intended as a field-book for assistants; and will be found extremely useful, as it contains full instructions, (with wood cuts) for laying out, and adjusting curves; with Tables of Angles, Ordinates, etc., for Curves varying from 13 miles, down to 146 feet Radius.

A portable Table of Natural Sines and Tangents to minutes, has for a long time been a desideratum among Engineers, independently of its use in laying out curves.

The volume is neatly got up in duodecimo; and handsomely bound in pocket-book form.

Sold by Wm. Hamilton, Actuary of the Franklin Institute, Philadelphia. Price \$1.

Also in press, and will be issued in a few weeks, "Trautwine's Method of Calculating Excavation and Embankment."

By this method, which is entirely new, (being now made known for the first time) the cubic contents are ascertained with great ease, and rapidly, by means of diagrams, and tables of level cuttings. Thin octavo; neatly half bound, \$1. For sale by Wm. Hamilton.
June 28, 1851.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

Notice to Contractors.*Steubenville and Indiana Railroad.*

PROPOSALS will be received at the Office of the Steubenville and Indiana railroad company in Steubenville, until the first day of October next, for the Grading and Masonry of the first division of the road extending from Steubenville to the Connott valley and also for the construction of the entire road between Steubenville and Coshocton; and also distinct proposals for the construction of that portion of the road extending from Coshocton to Newark.

The entire length of this line is about 110 miles, and it contains work of all descriptions, in great variety, some of which is quite heavy.

Proposals will be received for the Grading and Masonry of the first division entire or in sections of about a mile each, the Company reserving the privilege to make such disposition of the whole work, as may appear most conducive to its interests.

Plans, profiles and specifications can be seen at the office of the Company after the 15th of September, and further information may be obtained on application to J. Blickensderfer, jr., Chief Engineer, or to the undersigned,

D. KILGORE, President.

Notice to Contractors.*Engineers Office, E. T. & V. R. R. Company, Greenville, E. T., June 5th, 1851.*

PROPOSALS will be received until the 1st day of October next, for the Grading and Masonry of that part of the E. T. & V. Railroad between the Eastern terminus of said road at King's Meadow, and Rheatown, in Greene County, a distance of about forty-seven miles. A large amount of very heavy work, both in Grading as well as Masonry, will be found on this division, offering strong inducements to able Contractors.

Maps, Profiles, and Specifications can be seen at this Office, on and after the 20th of July next.

The Company reserve the right to reject all, or any proposals that they deem unsatisfactory.

Proposals should be directed to the Treasurer and Secretary of the E. T. & V. Railroad Company, Jonesborough, E. T.

LLOYD TILGHMAN,
Chief Engineer.**Railroad Lanterns.**

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849.

6m33

Railroad Iron.

THE Subscribers, Agents for the Manufacturers, are prepared to contract for the delivery of Railroad Iron at any port in the United States or Canada, or at a shipping port in Wales.

WAINWRIGHT & TAPPAN,
29 Central Wharf.

Boston, June 1, 1851.

Bowling Tire Bars.

40 Best Flange Bars 5½x2 inches, 11 feet long.
40 " " 5½x2 " 7 feet 8 in. long.
40 " Flat " 6x2 " 11 feet long.
40 " " 6x2 " 7 feet 8 in. long.

Now in store and for sale by
RAYMOND & FULLERTON,
45 Cliff street.

**To Railroad Companies,
Machinists, Car Manufacturers, etc., etc.**CHARLES T. GILBERT,
NO. 80 BROAD ST., NEW YORK.

IS prepared to contract for furnishing at manufacturer's prices—
Railroad Iron,
Locomotive Engines,
Passenger and Freight Cars,
Car Wheels and Axles,
Chairs and Spikes.

Orders are invited; and all inquiries in relation to any of the above articles will receive immediate attention.

THE Fourth Annual Exhibition of AMERICAN MANUFACTURES, by the MARYLAND INSTITUTE for the Promotion of the Mechanic Arts, will be opened in Baltimore on the 20th October, 1851.

The Exhibition will be held in the SPLENDID NEW HALL of the Institute, (fronting on Baltimore street) now being rapidly completed. Their edifice is centrally situated, chaste in its architecture, solid in its construction, and is by far the largest and most complete building in the United States, devoted to the Mechanic Arts. It may be added that this building is 355 feet long by 60 in breadth, with an average height of 68 feet, containing some twelve apartments, the largest of which is 255 feet by 60, and that the cost will be over \$70,000.

To this Exhibition, the Managers ask the attention of all engaged in industrial pursuits throughout the country, and cordially invite them to contribute specimens of their best productions for public inspection, and to compete for the prizes offered by the Institute. These prizes consist of GOLD and SILVER MEDALS, DIPLOMAS, etc., which were last year distributed as follows:—Gold Medals, 16; Silver ditto, 90; Diplomas, 60; besides 85 articles of Jewelry, etc., to ladies. Fair play will be scrupulously observed towards all, and every facility of Steam power, shafting, fixture, labor, &c., &c., will be amply provided free of expense. The machinery will be under a special superintendent, and a fine display of it is looked for. The last exhibition of the Institute was visited by more than 40,000 persons, and with their vastly improved accommodations and alterations, this number will be doubled at the coming display, embracing many Virginians, Pennsylvanians, and other strangers from the South and West.

Joshua Vansant, President.

Ed. Needles, } Vice Presidents.

F. A. Fisher, }

Samuel Sands, Rec. Sec'y.

Wm. Prescott Smith, Cor. Sec.

F. J. Clare, Treasurer.

BOARD OF MANAGERS.

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(*The last nine in Italics are the Committee on Exhibition.*)

The Hall will be opened for the reception of goods on MONDAY, 13th October; on the next Monday, 20th, at 7 P. M., the Exhibition will be formally opened to the public, and will positively close on Wednesday, 19th November. Articles for competition must be in the Hall by Thursday night, Oct. 16, unless delayed in shipment after starting in ample time.

Those who intend depositing, will give the Committee or the Agent, notice as early as possible, stating the nature of the goods, and probable amount of room required, to exhibit them to advantage.

Circulars, containing a view of the new Hall and the full regulations of the Committee, with special information, if required, may be had promptly, by addressing the undersigned, or the Institute's Agent, J. S. Selby, Baltimore, post-paid.

ADAM DENMEAD,

Chairman Com. on Exhibition for 1851.

SUPERIOR BLACK WRITING & COPYING INK.**Jones' Empire Ink.**

87 Nassau st., Sun Building, New York city.

Net prices to the trade—

Quarts, per dozen,	\$1 50	6 oz. per dozen,	\$0 50
Pints,	1 00	4 " "	0 37½
8 ounces,	0 62½	2 " "	0 25

On draught per Gallon, 20 cents.

This is the best Ink manufactured. It flows freely, is a good copying ink, and will not mould, corrode, precipitate or decay. Orders for export, or home consumption, carefully and promptly attended to by

21d

THEODORE LENT.

To Railroad Companies, etc.

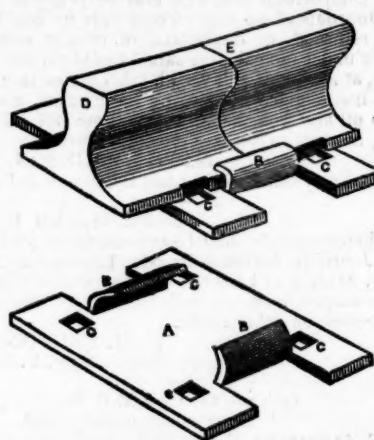
The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

I also invite attention to an improved PATENT SPRING LOCK, for SLIDING Doors to Freight and Baggage Cars, now in use upon the Pennsylvania Central, Greenville and Columbia, S.C., Reading, Pa., and other Railroads.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,
46 South 8th St. Philadelphia.

May 9, 1851.

The American Railroad Chair Manufacturing Co.

ARE prepared to make WROUGHT IRON RAIL ROAD CHAIRS, of various sizes, at short notice.

By use of the WROUGHT IRON CHAIR, the necessity of the wedge is entirely done away—the lips of the chair being set, by means of a sledge or hammer, close and firmly to the flange of the rail.

The less thickness of metal necessary in the Wrought Iron Chair gives much greater power and force to the spikes when driven—and consequently a much less liability to the spreading of the rails by reason of the spikes drawing or becoming bent.

The less weight necessary in the Wrought Iron Chair, will enable us to furnish them at a cost much below that of CAST IRON CHAIRS.

DESCRIPTION OF THE ABOVE CUTS.

Figure 1 is a perspective view of the rail secured in the chair, and fig 2 is a perspective view of the chair itself. D, E, are sections of two rails placed together, and secured at the joint on the chair by the jaws B, C. The chair is bolted down by spikes C, C. In fig. 2, the chair is represented as made of a single block or plate A of wrought iron.

The chair is set in its proper place on the track, spiked down, and the ends of the two rails brought together within the jaws as represented in fig. 1.

For further information address,

N. C. TROWBRIDGE, Secretary,
Poughkeepsie, N. Y.

June 1, 1851.

Railroad Commission Agency.

THE Subscriber offers his services to Railroad Co's and Car Makers for the purchase of equipment and furniture of roads and depots and all articles and materials required in the construction of cars, with cash or approved credit. No effort will be spared to select the best articles at the lowest market price.

He is sole Agent for the manufacture of the ENAMELED CAR LININGS, now in universal use. The best Artists are employed in designing new styles, and he will make to order pieces with appropriate designs for every part of the car, in all colors, or with silver grounds and bronzed or velvet figures.

He is also Agent for Page's Car Window Sash Fasteners, which is preferred by all who have used it to any other.

CHARLES STODDER,
75 Kilby st., Boston.

June 20, 1851.

3m.